Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOL. 2. NEW YORK, APRIL 24, 1847. NO. 31.

THE NEW YORK
SCIENTIFIC AMERICAN :
PUBLISHED WEEKLY.
At 128 Fulton Street, New York (Sun Building,) and 13 Court Street, Boston, Mass.
By Munn & Company.
The Principal Office being at New York.

RUFUS PORTER, EDITOR.

TERMS :—$2 a year—$1 in advance, and the remainder in 6 months.

☞See Advertisement on last page.

POETRY.

KEEP AT WORK.

Does a mountain on you frown ?
Keep at work :
You may undermine it yet ;
If you stand and thump its base,
Sorry bruises you may get.
Keep at work.

Does Miss Fortune's face look sour ?
Keep at work :
She may smile again some day ;
If you pull your hair and fret,
Rest assured she'll have her way.
Keep at work.

Are you censured by your friends ?
Keep at work :
Whether they are wrong or right,
May be you must 'bide your time,
If for victory you fight.
Keep at work.

If the devil growls at you,
Keep at work :
That's the best way to resist ;
If you hold an argument,
You may feel his iron fist.
Keep at work.

Are your talents villified ?
Keep at work :
Greater men than you are hated ;
If you're right, then go ahead—
Grit will be appreciated.
Keep at work.

Every thing is done by Labor ;
Keep at work,
If you would improve your station :
They have help from Providence
Who work out their own salvation.
Keep at work.

NATURE'S NOBLEMAN.

Away with false passion, so calm and so chill,
Where pleasure itself cannot please ;
Away with cold breeding, that faithlessly still
Affects to be quite at its ease ;
For the deepest in feeling is highest in rank—
The freest is first in the land ;
And Nature's own nobleman, friendly and frank
Is the man with his heart in his hand.

Fearless in honesty, gentle, yet just,
He warmly can love and can hate ;
Nor will he bow down, with his face in the dust
To Fashion's intolerant state :
For best in good breeding and highest in rank,
Though lowly or poor in the land,
Is Nature's own nobleman, friendly and frank,
The man with his heart in his hand.

His fashion is passion, sincere and intense,
His impulse is simple and true ;
Yet tempered by judgment, and taught by good sense,
And cordial with *me* and with *you !*
For the finest in manner, as highest in rank,
Is *you* man ! or *you* man ! who stand
Nature's own nobleman, friendly and frank—
The man with his heart in his hand !

The idea of wedging a thunderbolt in a pint mug, has been suggested to a western editor, while indignantly contemplating the supposed effort to " cramp his genius."

TOWNSEND'S HORIZONTAL PIPES.

INTRODUCTION.—There can hardly be found a subject connected with railroad travelling, which has occupied so much attention as that of extinguishing the sparks from the fires of locomotives, and conducting the smoke from the train so as to exempt the passengers from its annoyance. The project of conducting the smoke from the engine horizontally to the rear. has been a desideratum, but it has been left to Mr. Townsend to invent both a mode of the ready connection of the several pipes, by elastic sections, and to so condense the exhaust steam within the pipes as to extinguish the sparks, and measurably clarify the smoke in its passage. We can see no reason why it should not be immediately introduced and extensively adopted, feeling assured that a majority of travellers would give a ready preference to such trains as should be furnished with this apparatus, even at an advanced rate of fare.

EXPLANATION.—This improved apparatus is so well represented in the engraving, that we have thought it inexpedient to use any letters of reference. It will be seen that a bell-muzzle pipe projects horizontally forward of the regular smoke pipe of the engine, and which after its junction with the smoke pipe, extends rear-wards. This front pipe is for the admission of cold air ; and the steam from engine is conducted separate from the smoke, nearly to the junction of the vertical with the horizontal pipes ; and then, coming in contact with the cold air, it becomes partially condensed, and in its progress to the rear, it keeps the inside of the pipes so moist as to quench all the sparks before they reach the end of the series. The several horizontal pipes are connected to each other by sections of elastic pipes, consisting of india rubber cloth peculiarly prepared to withstand the heat, and supported in its position by a helical coil of wire, terminating at each end in a metallic hoop, which is so constructed as to be instantly adjusted and fastened to either end of either of the metallic pipes. The several pipes on any number of cars, are thus connected, or occasionally detached without any trouble or exertion on the part of the brakeman. Each joint or section is furnished with a small waterpipe which passes down the side of the car, for the escape of the water produced by the condensation of steam. Nearly over the safety valve, is a valve opening upward for the immediate escape of the steam when blown off from the boiler. It is proposed to elevate occasionally, the rear end of the series of horizontal pipes, thus throwing the smoke upwards. The inventor, Mr. S. P. Townsend of Albany. has taken measures for procuring a patent, and it is expected that the travelling public will soon enjoy some of the benefits of the invention.

Temperance Suggestions.

It has been suggested by a Mississippi whiskey dealer, that no man should be allowed to join the Temperance Society till he has paid up all his liquor bills. It would be better to reverse the proposition, and say that no man should pay his liquor bills till he has joined a Temperance Society.

Another Tough Story.

The celebrated Agassiz stated in a recent lecture, that in descending the Glaciers it was not unusual for the guides to slide down upon their backs for half a mile or more at a very swift rate, and thus to *shoot over chasms of twenty-five and thirty feet*, beneath which yawned gulfs of 500 feet in depth.

The Oldest One.

An Irish gentleman hearing it said that the Chapter Coffee-room was the oldest coffee-house in London, interposed, " I beg your pardon ; the Chapter Coffee-house *was* the oldest coffee-house in London, but it is not so now, for an older one has been set up since."

Push.

Keep pushing, if you run against a snow-bank or a rail fence, don't go back, but push them over or leap them. If you hit against any difficulty, push it forward, or on one side, and go on. Push ever, and keep pushing, and your fortune is half made.

Tight Squeezing.

"Come here, my lad," said an attorney, to a boy about nine years of age. The boy came and asked the attorney, "what case was to be tried next ?" The lawyer answered, "A case between the pope and devil—which do you think will gain the action ?" The boy replied, "I guess it will be a pretty tight squeeze ; the pope has got the most money, but the devil has got the most lawyers."

There are 50,000 persons in London workhouses, and 60,000 receivng out-door relief.

Game Keeping in England.

Few people in America are aware of the enormous expense at which the game forests on the estates of some of the English noblemen are supported. A correspondent of the *London Daily News* says, "I know a moderate-sized estate, not many miles from Petersfield, Hampshire, where the keeper has twenty-one bushels of corn served out to him once a week for feeding the pheasants alone.

Noble Bankrupts.

We understand, (says the London Mining Journal) a proceeding of some interest to the fashionable world will be brought before the public in a few days—no less than the appearance, in connection with the Court of Bankruptcy, of the Marquis of Douro (son of the Duke of Wellington,) the Earl of Essex, and Lord Bessborough, the Lord Lieutenant of Ireland, who figured as directors of Pilbrow's Atmospheric Railway Company, one of the pseudo schemes started during the recent railway mania.

A Calf Story.

A country gentleman was boasting of having been educated at two colleges. "You remind me, said an aged divine, of a calf that sucked two cows." "What was the consequence ?" asked a third person. "Why, sir," replied the old gentleman, very gravely, "the consequence was that he was a *very great calf!*"

Literature Analized.

Poetry, says somebody, is the flower of literature ; prose is the corn, potatoes and meat ; satire is the aquafortis ; wit is the spice and pepper ; love letters are the honey and sugar ; and dunning letters are the emetics ; letters containing remittances are apple dumplings.

Mrs Victoria draws a pound sterling from John Bull, with every breath that she draws through her rosy lips.

LIST OF PATENTS

Issued from the United States Patent Office, for the week ending 17th April, 1847.

To Benjamin Livermore, and Nathan F. English of Hartland, Vt., for improvement in machines for Boot lasting. Patented April 17, 1847.

To Bennet Woodcroft, of Manchester England, for improvement in Calico printing.—Patented April 17, 1847. Date of English Patent, June 22d, 1846.

To Francis Degen of New York, for improvement in apparatus for forming hat brims. Patented April 17, 1847.

To Oliver Judd of Cherry Valley, N. York, for improvement in hinges for Doors, &c.—Patented April 17, 1847.

To Augustus Devall of New Orleans, Louisiana, for improvement in Cotton Presses.—Patented April 17, 1847.

To Uriah Atherton Boyden, of Boston, Massachusetts, for improvement in hanging shafts of water wheels, &c. Patented April 17, 1847. Ante-dated Oct., 17, 1846.

To William F. Ely of New York, for improvement in preparing India rubber. Patented April 17, 1847.

To P. G. Gardiner of New York, for improvement in Saw Mills. Patented April 17, 1847.

To George Page of Washington City, D. C., for improvement in Pistons for Pumps. Patented April 17, 1847.

To Theophylact B. Bleecker of New York, for improvement in Folding Bedsteads. Patented April 17, 1847.

To Richard J. Gathing of Murphreesborough N. C., for improvement in Hemp Brakes. Patented April 17, 1847.

To Joseph McConnell of Beaver, Penna., for improvement in Drivers for Mill Spindles. Patented April 17, 1847.

To John Paterson of Medina, New York, for improvement in Cultivators. Patented April 17, 1847.

To George W. & Henry Sizer of Springfield, Mass., for improvement in Car Wheels. Patented April 17, 1847.

To F. Ransom & D. L. Farnum of N. York, for improvement in Fire Engines. Patented April 17, 1847.

DESIGNS.

To Wm. P. Cresson, David Stuart, Jacob Beesley & Lehman A. Watson of Philadelphia, Penna., for Designs for Stoves, (the said Stuart, Beesley and Watson having assigned their right to Wm. P. Cresson aforesaid.) Patented April 17, 1847.

To Wm. P. Cresson, S. H. Sailor, D Stuart and J. Beesley of Philadelphia, Penna., for Design for Stoves (the aforesaid S. H. Sailor, D Stuart, & J. Beesley having assigned their right to William P. Cresson aforesaid.) Patented April 17, 1847.

To Elijah P. Penniman of Rochester, New York, for Design for Stoves Patented April 17, 1847.

Hard Cyphering.

The following problem was once the subject of dispute among the learned. "When a man says, *I lie*, does he lie or does he not ? If he lies he speaks the truth ; if he speaks the truth he lies." Many were the books written by the philosophers on this subject.

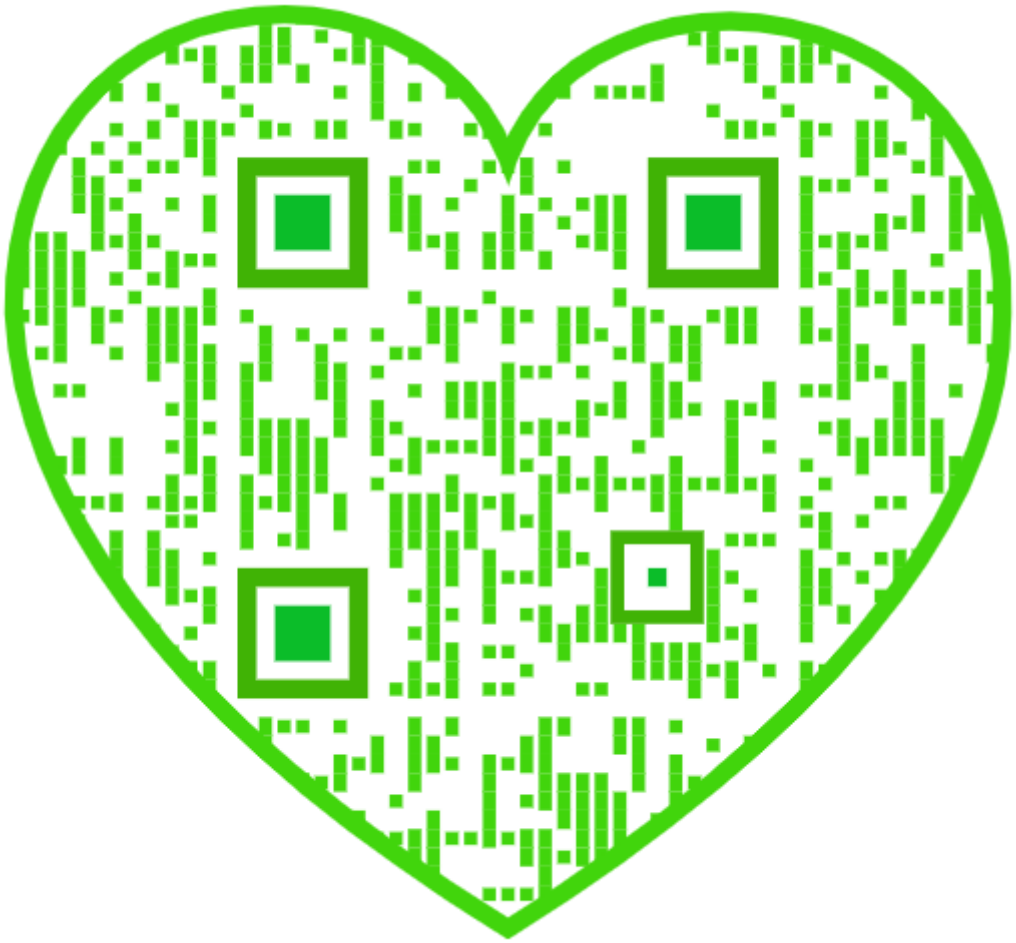
Frozen Together.

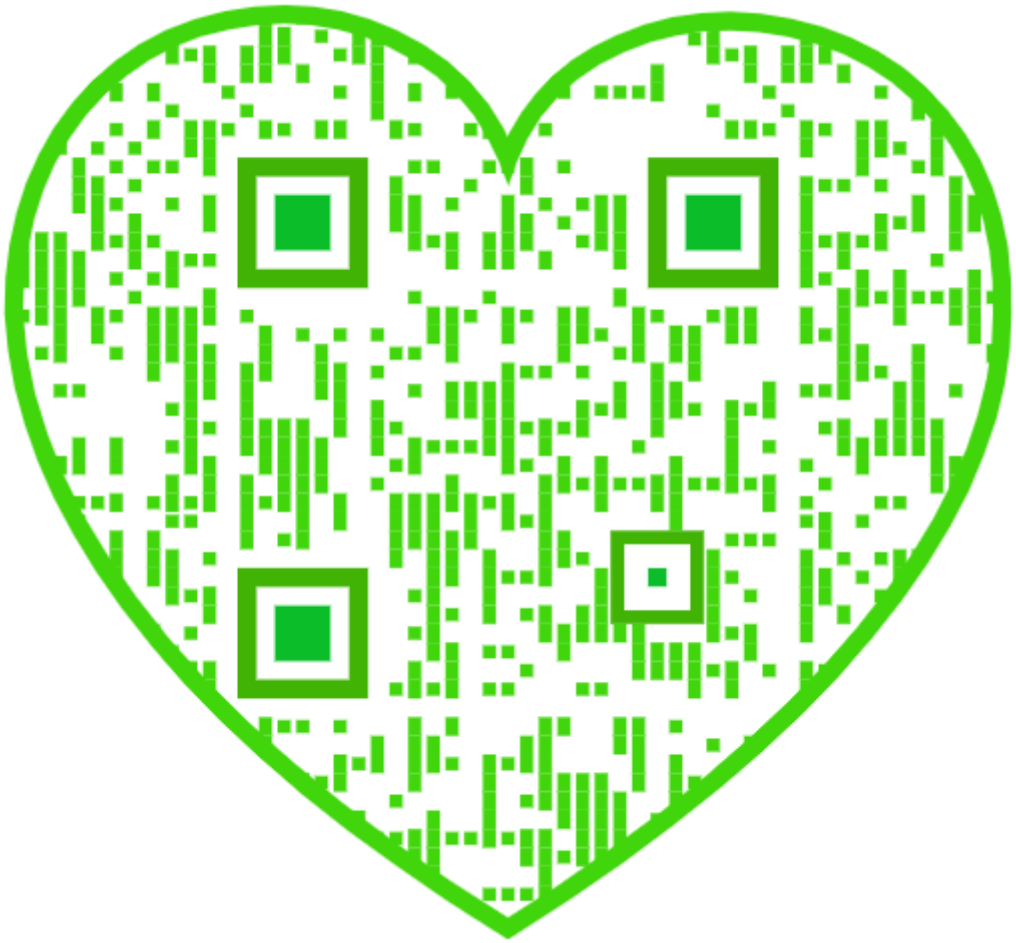
During a season of great religious declension, an aged deacon was asked whether the church to which he belonged was united.—"Ah, yes," replied the good man with emotion, "for we are all *frozen together*."

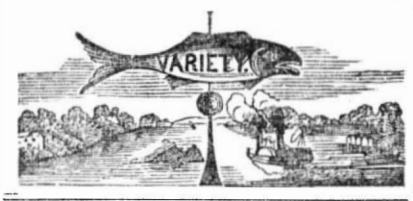
Aphorism by an Old Bachelor.

Wives who do not try to keep their husbands will lose them. A man does the " courting" before marriage, and the wife must do it after marriage, or some one else will.

© 1847 SCIENTIFIC AMERICIAN, INC







Signs of the Times.

(The following extract from an editorial under this head, in the "Spirit of the Age," especially its easy and sudden transition from the sublime to the ridiculous, is perhaps the most perfect illustration of the real, prevalent *spirit of the age* that could be produced.)

From all quarters of the world we hear news of the most exciting and interesting character. Commotions, convulsions, combats, cannonading—popular tumults—progress of free principles—omens of war—preparations for strife—starvation—pestilence—floods, fires & famine—earthquakes and tempests—disasters at sea and casualties on land—the spread of infidelity and the triumphs of truth—moral machinery for the conversion of the world, and physical improvements to perfect its material forms—the divine and the infernal from the spirit world, working by "influx," strange developments in the natural—philosophy which predicts that our round earth shall stand forever unharmed by floods of fire, and undestroyed by any convulsion of nature—and on the other hand prophecies with "times half times' and "prophetic periods," mysterious numbers, and alarming calculations, coupled with dire prodigies in the heavens and in the earth, fulfilling the divine foreshadowing of the sacred records. All these taken in connexion with the *war in Ann street* against the Temperance reformation, are enough to startle the minds of the stoutest, and awaken the fears of the most incredulous.

A Smuggler with Four Millions of Money.

There lives in Silesia a peasant, named Gudalla, as he was briefly called. He was formerly a smuggler. One day the Custom House officers were in pursuit of him, and having fired, the ball passed through his right arm, which was obliged to be amputated. Gudalla, forced to resort to another calling, established himself in a village called Rua. He had only been there a few days before his good fortune returned, and he had the luck of discovering a valuable zinc mine called Mary's Mine, and it has now became one of the most profitable zinc mines of any in Europe. Gudalla having asked and obtained permission to work his discovery, this peasant who can neither read nor write, is now in possession of a fortune estimated at 30,000,000 of thallers or about four millions of pounds sterling! Gudalla is unmarried and likewise being a foundling, having no relations or offspring, the whole of his immense property, according to the Prussian laws, will go to the King of Prussia. During his recent tour the King visited Gudalla, who felt highly honored by the visit; he is in good health for his time of life, being upward of sixty years of age.

Startling Occurrence.

The Dubuque Republican has published an account of a fall of ærolites in that neighborhood. In one instance, a large stone some six feet in diameter, and resembling a mass of sulphur, in its descent went through a large tree, crushing it to atoms, and entered the earth to the depth of about twelve feet, from whence it was afterwards recovered by those who witnessed its fall.

Colossal Candelabra.

A cut glass candelabra has been manufactured at Birmingham, for Ibraham Pacha. It is seventeen feet six inches in height, and stands on a crystal vase upwards of three feet in diameter. It realises the idea of an Eastern dream, and looks like a tall palm of an Oriental tale converted into crystal by the wand of a magician. Though apparently one entire whole it consists of upwards of five hundred pieces; yet the minutest scrutiny fails to detect a single metallic fixing in the whole candelabra — The shaft supports twenty-four arms—sixteen in the lower tier, and eight in the uppermost.

A mechanic in Philadelphia has invented an India rubber arm which weighs but little over a pound, for the benefit of those who have been obliged to submit to an amputation.

The Wonders of Nature and Art.

This is the appropriate title of a new work of 324 pages, by Gilroy, author of "Manufactures of the Ancients, &c." It illustrates particularly the wondertul construction of the most wonderful of all machines, the human frame and system :—the pernicious effects of alcohol thereon;—chemistry and its adaptations and practical uses in the arts and sciences;—harmony of modern scientific discoveries with the physical facts of the sacred scriptures;—wonderful automata ;—the formation of images in a dark chamber, and transposing prints to metal plates;—architectural engraving and mechanical drawing. The index refers to about sixty different subjects, and the work is embellished with sixty one engravings. This work is published by Burgess, Stringer, & Co., 222 Broadway, and we have made arrangements to furnish a few copies from this office, and shall send them by mail, postage paid, to any part of the United States for one dollar per copy. Price at the office 62 1-2 cts.

Ranlet's Architect.

We are in receipt of another number of this unrivalled work, and have decided to advise the publisher to double the price thereof forth with: it is too bad that a work worth two dollars a number, should go for only 50 cents.—Otherwise, we shall advise some speculator to take up the whole edition of each number, and double his money thereon. It is enough to increase one's love of life to see the splendid and tasteful cottage edifices represented in bold *claro obscuro* with their gay piazzas, shaded porticos, fancy windows and surrounded with shrubbery, grass-plats and gravel walks. But we have said enough. Perhaps our readers will not remember that this work is published at Graham's in the Tribune Buildings.

Thirteen More New Papers.

We are not informed how often the old ones die, but it is surprising to see how rapidly new papers make their appearance on the stage. The one we have particularly in mind—because it lies before us,—is "the Champion of American Labor," a large, embellished and well printed *New York city paper*, containing a little of every thing, published at 27 Ann st, by an association of mechanics. We shall not venture much of a puff at this time, but if it does not prove to be worth as much as the other dozen, we shall think the first two numbers are not fair specimens.

A Pattern Justice.

A Mr Alonzo Lewis, in a letter to the Lynn News, says: "I have been a Justice of the Peace for more than six years—and during that time have had many cases presented to me, all of which, with a single exception, I have settled without a dollars' expense to either party. When all my brethren can say as much, their sleep will be as sweet as mine is.

Singing in Primary Schools.

The general introduction of singing into our primary schools, is one of the most pleasing and important improvements in education at the present time. Music is one of the richest sources of enjoyment to well informed minds; it is one of those precious gifts of Heaven which man's perverted nature has not been able to entirely destroy, and when cultivated, does much toward restoring what has been lost by sin.

Locomotive Struck by Lightning.

On the 13th ult., a locomotive attached to the passenger train passing from Atalanta to Augusta, Ga., was struck by lightning. The fluid passed along the machinery of the engine to the cars, shaking some of the inmates pretty severely, but doing no damage. It is supposed that Mr. Townsends horizontal smoke-pipes may be so connected as to form a perfect protector of the cars from lightning.

Iron Bridge Rail.

Mr. Wood of the British Iron Company's Works in Abersychan, recently succeeded in rolling iron rails weighing 90 lbs. per yard, and 30 feet in length. These rails are said to be perfect, and very nicely finished. It is difficult to say where the limits to the size of iron rails will be found.

Gen. Worth is known by the cognomen of "The Waving Plume." It is a pretty title, graceful and spirited.

Wire Bridges.

It is stated in the Rochester Democrat, that the Niagara Suspension Bridge Company will shortly proceed to the erection of a Wire Bridge across the Niagara river. The whole of the stock, $200,000 has been taken—one half in Canada, and the remainder in New York.—"Contractors in Philadelphia and Pittsburg offer to build a good and substantial bridge of *wire* for $200,000. It will be 40 feet wide—the centre track for cars to connect with the Canada road through to Detroit, and capable of transporting 300 tons over it at once, at the rate of 10 miles an hour. There will be two tracks for carriages and a foot path. It will have three spans with abutments 200 feet high.

The Nomination of Gen. Taylor.

The other day, at one of our hotels, a gentleman was reading from a newspaper the nomination of Gen. Taylor for the Presidency, *subject to* the decision of a National Convention. "A National Convention be ——," exclaimed a six foot Kentuckian; "why, sir, I tell ye, Gneral Taylor will be nominated and elected too, throughout the whole of these U. States by *spontaneous combustion !*"

Lake Superior.

The following are the returns to the government office, of the copper ore taken out by the different companies for the month of January, viz:—Pittsburg & Boston Co., 500,000 lbs.; Copper Falls Co, 20,000; Bohemia, 40,000; North West, 10,000; Eagle River, *boulders pure*, 1,000; Eagle Harbor, 4000; North Western, 4000; Suffolk, 200,000; Luc La Belle, 20,000.

Singular Occurrence.

We find it stated in papers from Buenos Ayres, that at Sacramento a widow woman while on the mole superintending the embarkation of cattle, fell suddenly dead after having embarked about 60 head, and all the cattle died at the same time from some unexplainable cause. The affair produced general consternation.

An Extensive Town in Prospect.

J. K. Mills Esq., of Boston, has purchased the entire water privilege and factories opposite South Hadley, Canal Village, for a company who intended to enter largely into manufacturing. The villages will undoubtedly be connected by a bridge.

School for Rogues.

It is said there are two convicts in the State Prison engaged in engraving plates for bank checks, also printing them. We should think they would be apt to profit by it when they obtain their release.

An Engineering Difficulty.

The Bingley bog, across which it is intended to form a portion of the railway between Shipley and Keighley, swallows up sixty tons of earth and stones every hour of the day, without presenting any appearance of the wished-for embankment.

No Spanish Railroads.

It is remarkable that there is not in the world such a thing as a railroad in any country where the Spanish language is spoken, with the exception of the short one in Cuba, which owes its existence to American enterprise.

Ocean Steam Navigation.

The city of Bremen has subscribed $100,000, the government of Prussia, $100,000, the free city of Frankfort, $20,000, and other cities sums corresponding to their abilities, towards the establishment of the steamship line between New York and Bremen.

U. S. Mint.

The coinage of the Mint at Philadelphia for the month of March, was, in gold coins $1,988,880; in silver $88,600; in copper $2031. Total, $2,079,511.

A New Idea.

The Treasurer of the school district in Richmond, Indiana, advertises that he will pay children a certain sum per day for every day they will attend school.

Portrait of Gen. Taylor.

There appears to be no such thing as a recognized likeness of Gen. Taylor to be found. Mr. Geo. Atwood of Philadelphia, has gone to Mexico expressly for the purpose of painting a portrait of the hero.

Powder Mill Explosions.

The Packing and drying houses of Dupont's powder mills near Wilmington, Delaware, were last week destroyed by explosion; 6,000 barrels of powder were destroyed, and *eighteen* laborers were instantly killed, and one more wounded. The concussion was felt at Philadelphia, a distance of thirty miles.

Annealing Zinc.

It is stated by Prof. Faraday that by pouring melted zinc into water, and often repeating the process, the zinc becomes soft and malleable, losing none of its tenacity, but is capable of being spun into the finest wire, pressed into any required thinness.

The Temperance Reform.

The city of Columbus, Ohio, has gone No License by a majority of 324. Franklin county do. 149 majority. Ohio and Cleaveland cities have decided against granting licenses, the former by 204 majority, the latter by 179.—Washington county, Penn., has voted No License by about 1,000 majority.

A Deep Interest in the Earth.

A mason speaking of the difficulties of making a cellar rather deeper than it is usual to have them, was answered by the owner of the property, that he could have it as deep as he pleased, for *he owned all the way through.*

"Good News from a far Country."

The best news by the recent arrivals from Europe, are, that the British Parliament have passed the law forbidding the employment of women and children in the factories for a longer period than ten hours a day.

Factory at Alexandria.

At Alexandria, Va., a meeting was recently held at the Lyceum, for the purpose of organizing a cotton factory company, at which over $40,000 was subscribed, and a committee appointed to obtain further subscriptions, it being designed that the capital shall be one hundred thousand dollars.

The Manufacture of Paper.

The capital employed in the manufacture of paper in the United States is $18,000,000; the number of mills 700; the annual product $17,000,000, and the number of operatives employed 100,000.

Machinery for Confections.

George Duncan of Glasgow has invented a machine for manufacturing confections. 1200 lozenges can be struck in one minute, by one of the machines.

An anti-gambling law has been passed in Pennsylvania, giving magistrates summary power to enter suspected buildings. A person enticing another into a gambling house, is to be responsible for losses incurred, and liable to a fine of not more than $500 or not less than $50.

There is supposed to have been at least fifteen thousand foreign emigrants arrived in this city within the last three weeks.

A magazine proprietor is about to offer a prize for the "tale" Hamlet's ghost could have unfolded.

Mr Capon, of Boston, has proposed to the Massachusetts Legislature, the purchase of the freedom of all the slaves in the United States.

The names of twenty seven American officers killed, and thirty eight wounded at the battle of Buena Vista have been reported and published.

One quarter of the children born, die before they are a year old. One half die before they are twenty-one, and not one quarter reach the age of forty.

The average number of inhabitants to a square mile in China is 230; in England 336; in Ireland 275.

Never go to market immediately after eating a full meal, for you cannot possibly judge what will best suit your appetite at another time.

The transportation of free laborers from the coast of Africa to the West Indies, is now carried on by the English government.

The *Academie Francaise*, of Paris, awarded last year a prize of 5000 francs to a Mr. Royband for a work refuting the Socialist system of St. Simon, Fourier and Robert Owen.

© 1847 SCIENTIFIC AMERICIAN, INC

LIFE.

This life's an experiment,
Whose results are to be learnt
Where we shall go.
Each thought and each feeling,
Each word and each deed,
Our destiny sealing,
Have in them the seed
Of weal or of woe.

Wisdom then cries aloud,
To all the thoughtless crowd,
Be wise to-day.
The trial season's passing,
Another year has gone;
The moments still are fleeting,
Soon they will all be flown;
Time will not stay.

This life is a battle,
Whose missiles round us rattle
Continually.
We are always safest,
In this dread strife,
When our courage 's bravest;
Contending for life,
Why should we flee?

Our hope is in victory;
Slothful, we should conquered be,
All would be lost.
Then gird the armour on,
Let the strife be maintained
Until the battle's won;
Victory cannot be gained
At too much cost.

This life's an ocean
Whose continual motion
Bears us along.
Amid frightful perils,
With rapid speed we fly;
Insensible to evils
Let us not be, charmed by
The Syren song.

But constant vigils keeping,
And never lulled to sleeping,
Come, let us sail
This stormy ocean
With all our sails up, helping
Its onward motion,
And hope sent forward, anchoring
Within the veil.

A Temperance Holocaust.

A sturdy fellow in Virginia, as early as 1808, enacted a scene which was altogether beyond the comprehension of the age in which he lived. The enthusiasm by which he was actuated was new and unclassified, so it was dignified with the name of Religious Enthusiasm, and its symptoms were thus described in a paper of that day: "On Thursday, the first of September, a man by the name of S——, living in Lynchburgh, in a fit of fanaticism, sent the crier with his bell round the town to inform the citizens that at a given hour there would be a burnt sacrifice offered on the hill in front of the town. At the hour appointed, several casks containing rum, French brandy, whiskey, &c., to the amount of 400 gallons and upwards were drawn by a dray to the summit of the hill, and fire set to them. In vain did a brother and several of his neighbors endeavor to prevail upon him to sell his spirits and distribute the proceeds to the poor—he was unalterable—the will of his Maker should be done.

Spinning.

The Dutchess of Orleans having taken a fancy to procure an elegant, ivory spinning wheel, all the fashionable ladies in Paris are in a rage for spinning, and many spinning wheels have been presented as holiday gifts, to young ladies.

Chinese Women.

The idolators of beauty, the Chinese, when any of their wives are indisposed, fasten a silken thread round her waist, the cord of which is given to the physician, and it is only by the motion which the pulsation communicates to it that he is allowed to judge of the state of the patient.

Ups and downs are well exemplified in the life of Louis Phillippe; who was once permitted in charity to share the bed of a stage driver, in Salem, Miss., but is now the richest individual in the world.

Wheel Cultivator.

SHELBY, (Orleans Co.) N. Y., April 8.

Mr. Editor.

On the 18th day of April, 1846, my father, Nathan Ide, obtained letters patent for a Wheel Cultivator, (of which an engraving and description were published in the Genesee Farmer of October last,) which machine being highly approved by the farming community, and he being very successful in disposing of the right to construct them, induced a host of competitors to enter the lists and endeavor by "improvements and alterations," to either wholly evade or so modify the patent, as to come in themselves for a share of the profits. The attempted improvements consisted of a wheel in the centre, to allow it to accommodate itself the more readily to the irregularities of the surface; and different kinds of levers and cranks to raise and lower the machine easily. As some addition to the machine seemed necessary to enable it to accomplish these purposes, and as none of the attempted improvements seemed to accomplish those ends, I concluded to attempt the thing myself, and believe I have entirely succeeded (not only in my own opinion, but also in the opinion of competent judges.) The improvement I have invented consists of two upright posts at each end of the machine, made of plank 2 inches thick, the front one being 6, and the back one 5 inches wide; these stand 4 inches apart and are well braced and solid; between them plays a moveable gate or slide, to which the wheel or slide is attached. On this slide, on the inner side, is fitted a straight segment about 16 inches long; an iron semicircle of 6 inches radius plays in this segment, being attached to a shaft going from the tongue each way to a small post just outside of the semicircle. To this shaft, or shafts, (for there are two of them, one on each side of the tongue) the handles are attached. These handles are 2 feet 6 inches in length, and operate as levers to roll the shafts either way. In each of these handles a long spring bolt is inserted which has for its socket a semicircular piece of iron fastened on the side of the tongue and notched on the convex side: this completes the improvement. By pushing the handle forward the wheel is lowered and consequently the frame is raised. This can be done to the height of 7 inches, or more if necessary. By pulling the handle backward the wheel is raised and consequently the depth is regulated. This may go any depth, say 6 or 7 inches, or any intermediate depth, the notches being so graduated as to raise and lower the wheel one half inch each. Thus, by turning the handle backward and forward the wheel may be raised or lowered the whole length of the segment, from 7 inches above the ground to 7 inches below it, or one wheel can be raised and the other lowered, thus effectually precluding the necessity of a wheel in the centre (which wheel, by the way, is worse than useless, as the outside wheels only have about one-fifth of the weight of the machine each, whilst the centre wheel has three-fifths, and also renders it liable to clog.) By means of the handle also, we gain a leverage power of 500 per cent; and have not so much of the machine to raise. Thus a boy 10 years old, can raise or lower it with ease.

I wish to know whether I can obtain a patent for this improvement; also, whether those who purchase rights of my father for the original patent, can be insured the improvement.

Very respectfully, SAMUEL IDE.

ANSWER.—We apprehend no difficulty in procuring a patent on your improvement, as such; but you may find it requisite to obtain from the proprietor of the original patent, permission to use any peculiarity *claimed* in that patent. The purchasers or assignees of the original patent, or right therein, cannot use your improvement without your consent.—ED.

French Court Dress.

A *feuillelon* of the *Epoque*, in giving an account of a ball given by his royal highness the Duke de Nemours, writes—"for the first time all the gentlemen wore white cravats, white knee breeches, white silk stockings, a French full dress coat, buckles in their shoes, and the *claque*, or flat cocked hat—in short it was the fashion of the last century revived in the year 1847.

THE WEATHER, &c

WEDNESDAY, APRIL 14th.

	HOURS, A. M.									HOURS, P. M.									
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
Therm.	—	—	38	39½	48	49½	52	54	53½	53	52½	52½	51½	48½	46½	42½	44½	43½	43
Wires,	—	—	50	53	57½	60	60½	62	61½	61	60	59½	58	55½	53½	52½	52½	51½	51½

[*Equilibrium.*

THURSDAY, 15th.

Therm.	—	—	44	43	44	46	46½	47	49	53	54	54	52	47½	46	44½	43½	42½	41½
Wires,	—	—	51½	52	53	54	54	54½	56	58½	59½	60	58	53	51½	51½	50½	50½	50

[*Equilibrium ended.*

FRIDAY, 16th

Therm.	—	—	33	34	39	43	45	46	47	49	51	51½	51½	49½	48	44½	43	43	43
Wires,	—	—	47	49	53	55½	55½	56	56	57½	59½	59½	61½	58	57	53½	51	51	51

[*Equilibrium.*

SATURDAY, 17th.

Therm.	—	43	43	44	47	51	53	58	59	62	60	58	58	56½	55½	53½	51	46	44
Wires,	—	51	51	53	55	58	60	64½	64½	68½	67	64½	64	62½	62	60½	57	52	51

[*Equilibrium ended.*

SUNDAY, 18th.

Therm.	—	—	33	34.	36	36	38	38	40	40	40	40	39	36	34½	33	31	30½	30½
Wires,	—	—	46	48	50	49	51	51	51	52	51	51	51	49	48	47½	46	47	47

MONDAY, 19th.

Therm	—	26	27	30	37	49	41	44½	44½	43½	44	45½	48	47	46½	44	43	42	42
Wires,	—	46	47	49	54	54	54	55	55	53½	54	54½	56	55½	55	53	51	50½	50½

[*Equilibrium.*

TUESDAY, 20th.

Therm.	—	39	39	43	48	51	53	55½	58	58½	57	53	52	51	48½	48½	49	48	48
Wires,	—	50½	50½	53	57	58½	60	62	64	64½	63	60	58	57	55	54	55	56	55

[*Equilibrium ended.*

REMARKS.

April 14. Snow fell at Buffalo also east of Rochester during the night. April 15. Snow birds and sparrows came to my yard for food. Rain at 35 minutes past 9 A. M. Rain at 4 P. M. Snow at Albany in the evening, and at Buffalo during the day. April 17. Snow clouds in sight; sprinkle of rain at half past 2 P. M. Rain at 8 P. M. April 18. Ice formed one eighth inch thick—snow fell at Philadelphia this morning. April 19. Ice formed one quarter of an inch thick. April 20, cloudy and a little rain. E MERIAM.

Brooklyn Heights, April 20, 1847.

Earthquakes, Lightning, Snow and Rain.

A slight shock of an earthquake was experienced at Green Bay on the 9th ult. The shock was more severe upon Fox river,

In the Scientific American of March 20, I noted the state of the magnetic, meteoric and electric wires and of the thermometer on the evening of March 9, and morning of March 10, by reference to which it will be seen that the wires vibrated but half a degree from 4 P. M. on the 9th, to 6 A. M. of the 10th, and were *equilibriated* for more than 9 hours; from 6 P. M. of the 9th, to 9 A. M. of the 10th, the thermometer fluctuated but one degree.—Snow fell at Brooklyn from 11 A. M. to 1 P. M. the 9th.

At Saltville, mountains of Southwestern Virginia, an equilibrium commenced at 10 P. M. March 8th, and lasted till 7 A. M. March 9th; thermometer at 54 1-2, thunder and lightning at night. From the 7th to the 12th, 6 inches and 6-100 of rain fell at Saltville.

At Syracuse, Onondaga Salines, the thermometer was *equilibriated* at 9 P. M. March 9, to sunrise of March 10; the temperature is noted at that locality only four times a day, viz. at sunrise, 9 A. M., 3 and 9 P. M.

Thus it will be seen that this earthquake was well indicated by the recorded observations made at these stations several hundred miles apart, and was attended by the usual accompaniments of thunder, lightning and snow, with rain at the South.

Another earthquake was experienced at 9 o'clock in the evening of April 1st, at Limington, Maine, and near the White Mountains.

My accounts from Saltville are up to 10 P. M of March 31, the temperature by the thermometer at that hour was 34°, having fallen 3 degrees during the previous hour, and 24° from 10 P. M. of 30th, at which it was 60°, during which depression thunder and lightning was active.

My accounts from Syracuse are to 9 P. M. March 31. Snow commenced falling at 7 A. M. March 30 and continued till 7 A. M. March 31, temperature 20°—the previous night at same hour 36°.

On Brooklyn Heights the temperature was 29° at 9 P. M. March 31, and 34° at the same hour the previous evening. On the morning of April 1, at 6 o'clock, temperature 23°.

The morning of April 1st, the temperature at Albany, at sunrise, was at *zero*; at Deerfield, Oneida County, 10 degrees below *zero*, and at New Lebanon, Columbia County, 11 degrees below *zero*.

A correspondent of the Scientific American writing from Albion, N. Y., says that 6 P. M the evening of March 30th, there was a snow storm at that place accompanied by thunder and sharp lightning.

On the evening of March 30, at 7 o'clock, there was a furious driving snow storm at Rochester. accompanied by heavy thunder and vivid lightning, during which the telegraph wires were struck by lightning. At Toronto, Upper Canada, the same day, there was a snow storm attended by bright flashes of lightning and heavy thunder.

Snow fell on Brooklyn Heights on the night of March 30; and again on the morning of April 2, at 6 A. M. followed by rain from 7 1-2 to 9 1-2 A. M. The state of the wires and thermometer was not registered for 12 hours during the night of April 1st, I being confined to my bed by severe illness. It will be seen by the Scientific American of April 10, that the wires were at 48° at 7 P. M. April 1, and 49 1-2 at 7 A. M. April 2, being a rise of 1 1-2 degrees in the night, followed by a fall of snow—the thermometer rose also during the same time 2 1-2 degrees, from 32 to 34 1-2. It is impossible now to ascertain whether the wires were equilibriated on the night of April 1.

These records show that earthquakes, lightning, snow and rain bear each other company. Our snow storms commence with lightning.

On the 26th of March, there was a lightning storm at Philadelphia; same day at 11 A. M. a man was killed by lightning at Woodbridge, N. J., and a span of horses he was driving were also killed; the same day a hotel was struck by lightning at Southport, Tioga County, N. Y., and a young man killed; the same day snow commenced falling at Albany at 3 P. M. and continued for 20 hours, during which 18 inches snow fell. The evening of April 12, vivid lightning was visible in the Northeast—heavy thunder and sharp lightning at Philadelphia and Baltimore between 8 P. M. and midnight, and the morning of the 13th a barn near Uniontown, Md. was struck by lightning and with 8 cattle and 2 horses, consumed, and the same morning a barn near Chambersburg, Pa., was struck by lightning and with two horses, cow and calf and 12 or 15 bbls. flour, consumed; the same morning snow fell at Troy, N. Y. and on Brooklyn Heights.

My Meterological Records show for the last 9 months, commencing with July, 1846, and ending with March, 1847, the fall of rain and melted snow, as follows, viz. at Saltville, South western mountains of Virginia, (altitude 1782 feet,) 36 inches and 32-100 of an inch; at Syracuse, N. Y. (altitude 400 feet,) 35 inches and 40-100 of an inch; at Flatbush, L I., (altitude about 65 feet,) 34 inches and 66-100 of an inch of rain fell. Thus the mountain districts, the interior near the great lakes, and the Atlantic shores, each are supplied with an equal quantity of rain from the clouds. These rain guages are kept with great care.

The cold strata of air April 1, was in a narrow belt; it was preceded by lightning and snow, and ended in an earthquake.

I have an account to present in my next communication, of an earthquake on the 2d of February, preceded and succeeded by wonderful phenomena. E MERIAM.

Brooklyn, April 17th, 1847.

© 1847 SCIENTIFIC AMERICIAN, INC

NEW INVENTIONS.

Improvement in Mill Saws.

We have received from the inventor, Mr. Moses B. Wright of Leesville, Ct., a model of a mill saw, so constructed as to plane the boards both sides in its progress of sawing — We are aware that some thing of the kind has been attempted before, but none that could claim equal simplicity. A square hole is cut through the saw plate, near the centre, and a small section of the plate which constitutes the top of the aperture, is bent out in one direction, and that at the bottom, in the other direction; and these two bent edges, being made sharp like a plane cutter, and being properly tempered for that purpose, each cutter shaves off a small portion of the surface of its respective side surface, at each vibration of the saw. The cutters are about an inch wide —and if kept sufficiently *sharp* (that is the main point) they will answer a valuable purpose.

Improved Bee Hives.

Mr. Isaac Ide of Shelby, N. Y., has invented an ingenious bee hive, a description of which we give in his own words:

The body of the hive consists of four eight inch square boxes (minus top and bottom) so placed as to form a low square, cornering in the centre, one inch and three fourths from which corners, and one inch and one fourth from the top, are corresponding apertures, two and a half inches in length and a half inch in width, leveled on the inside one half inch each way. The two inside pieces of each box, with also the top of each, are half an inch thick.— One inch from the outward course of each top piece are panes of glass three inches square, these top pieces are put on with screws. The two outside pieces and bottom of each box are one inch thick, and are fastened together with wire hooks at the two opposite outside corners, each. The cover or top piece is one inch and a half thick and sufficiently large to project one inch and a half on every side of the hive, and leveled on the top, and to which projection a cleet is fastened to keep the hive in a square position. On two opposite sides of the hive one half inch each way from the centre in the bottom boards are mortices one inch and a half in width and three inches in length, into which is put a piece four and a half inches in length, which projection answers for a shelf upon which the bees may alight, the back ends of which is notched in and are fastened in front by wires similar to bolts for doors, and may be raised or lowered, as occasion requires. Near the back ends of these doors or shelves, are apertures covered with wire gauze on the upper side. Some of the many advantages are simplicity of construction, security against the moth, a saving of travel or travail, or a little of both, as they are allowed to enter either box; and many, not necessary to describe here."

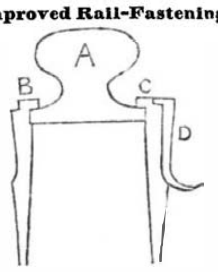
We are not acquainted with all the variety of hives which have been invented, but have not examined any of this construction, and presume the inventor may obtain a patent therefor, which is his intention.

The Fumic Propeller.

Some of the English papers speak of a new propelling power, invented by a Mr. Gordon, and to which the above title is applied. The principle appears to consist in producing an expansion of air by heat, and forcing the same horizontally into the water at the stern of a boat. Mr. Gordon says that he has succeeded in a boat 26 feet long, and 4½ broad—one man blowing a common small forge bellows, doing the work of two rowers. The bellows entered into a close furnace, luted, and fitted tight; and each stroke passed air through the close fire, the hot products rushing out against the water by a discharge pipe, immersed 12 inches. "The first blast by one man started the boat (weighing two tons,) from a state of rest, 3 feet in 2 seconds"—the fire, and one man blowing air, doing the work of two men; hence it followed, that suitable close furnaces blown by a 50 horse power steam engine, will do the work of 100 horses in impelling the vessel, and so on in proportion.

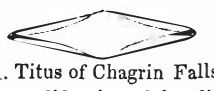
This statement *may* be nearly correct, but we have no idea of the practicability of propelling large boats by this method.

Improved Rail-Fastenings.



Railroad makers have found much difficulty in securing the rails to the ties or string pie- and in many sections of road, the spikes ordinarily used, have been started up an inch or more, thus endangering all that pass over the road. To remedy this, Mr. N. B. Jewett of Worcester, has invented the mode shown in this engraving, in which A represents a transverse section of rail; B and C are spikes made with shoulders, as represented, and are driven in the ordinary manner, to confine the edges of the rail, and on the outside of each spike is driven another of smaller dimensions, and straightly tapering to a point. When the point of this counter-spike or fastener comes in contact with the curved shoulder of the first, the point becomes bent outward, assuming the shape represented at D, thus forming a permanent hook which will effectually prevent the other from starting up from its place.

Improved Spring.



Mr. H. A. Titus of Chagrin Falls has introduced a new modification of the eliptic spring, as represented in the cut, and which proves highly satisfactory to those who have used it. The outside leaves are of single plate, and to those are welded the braec leaves within.— This is supposed to be a new invention, and may be entitled to a preference over the more heavy and expensive kinds in common use.

Paine's Marine Locomotive.

We find in some of our exchanges, expressions of admiration of a new plan and model for steamboats, and which is to be adopted by Government, for a steam frigate, and is highly recommended as most suitable for the navigation of Long Island Sound. The following is the description given:

The buckets or paddles are made fast on the cylinder, at an angle of fourteen degrees with its axis, and curve on the face of the cylinder, so as to prevent the lateral escape of water.— They neither lift nor bury water, and their hold by actual experiment, is one-twentieth greater than that of the usual side wheels, and heavy or light freighted, they work without any adjustments. Mail steamers are to have duplicate engines, and no spars or other top hamper. Armed vessels or a cruiser, are provided with spars, schooner rigged, and are constructed so that when a vessel is steaming against wind, they can be laid on the ships' upper work and lashed to their bearings.

"The mould of the vessel is that of an eliptic through the midship cross section, the longest axis being horizontal; this axis shortens as you approach the stem or stern, and as the eliptic figure is continued, and the perpendiculars remain the same, the axis at length shifts and becomes vertical, continuing to diminish in its horizontal diameter, till it joins the stem or stern an acute wedge. The horizontal diameters are so shortened as to form an eliptic water line, when a line is passed along the bends or acute curve of the midship eliptics.

The wheel is a light cylinder in the midships, and works against a column of water that rises up into the vessels' bottom, a little forward of the wheel, and passes aft."

From this description we infer that the plan of construction may claim some advantageous points; but that it will move through the water with less resistance than other models, is at least inconsistent with our theory, especially considering the immense resistance which must necessarily be occasioned by the *rising up of the water* into the vessel's bottom.— Perhaps we may think better of the plan when we have a more perfect knowledge of it.

Cast-iron Steel.

We find a statement in an exchange, that a Mr. Isaacs (residence not given) has invented a process for converting to good steel all kinds of edge tools &c., made of cast iron. It consists in stratifying the cast articles, in cylindrical metallic vessels, with oxide of iron, and then submitting the whole to a regular heat, in a furnace built for the purpose. The cast iron of which this cutlery is made, is in the first instance brittle, like other cast iron, on account of the carbon contained in it; but the great change it undergoes, aided by the pulverized oxide, separates a portion of the carbon. This, uniting with the oxygen of the ground oxide of iron, is dissipated, either in the state of carbonic oxide, or carbonic acid gas; and the articles are converted into a state quite similar to that of good cast-steel cutlery.

Austin's Perpetual Motion.

(*Concluded from No.* 30.)

Now let us hold fig. 1 so that A 1 may be in a perpendicular position, ascertain the situation of all the weights, and see if the wheel has not a strong tendency to move. The wheel is calculated for the left side to ascend, and the right side to descend:

Let us begin with A 1. This tube is now balanced, because it is in a perpendicular position. While it remains in this position, it gives neither impulsive nor opposing power.

Now let us examine A 3. This tube is now in a horizontal position. By the lateral pressure of the water in this tube C and C are carried to the ends of it, at equal distances from the centre of the wheel, and therefore balance each other. The three fourths of a cubic foot of vacuum, which was at the top of the tube when it was in a perpendicular position, has been to the upper side of it, above the dotted line. E weighs in the water nearly 120 lbs. As the bulk of E is one fourth of a cubic foot, it will, of course, weigh out of the water, nearly 15 lbs. more, 15 added to 120 are 135. K is now at E in this tube. The weight and bulk of K are nearly equal to the weight and bulk of E. K weighs nearly 120 lbs. in the water, and nearly 135 out of it. E and K added make nearly 270 lbs. If nearly 240 lbs. of this weight were placed at the centre of F, 2 1-8 feet nearer the centre of the wheel, this tube would be balanced. Therefore, the X which this tube now, in its present position, gives, is equal to what is obtained by removing nearly 240 lbs. 2 1-8 feet further from the centre of the wheel, than they are when the tube is balanced.

Now let us examine A 2, and A 4. The impulsive power of tube 2d which is made by B at the upper end of it, is equal to the opposing power of tube 4 which is made by B at the upper end of tube 4. Therefore, this part of the impulsive power of tube 2, is balanced by this part of the opposing power of tube 4. K in tube 4 is now at the centre of the wheel. It gives, therefore, neither impulsive nor opposing power. E in this tube is nearly 120 lbs. In order for the wheel to give X according to my aforesaid computation, it is necessary that there should be at E in this tube, when in its present position, nearly 120 lbs. more, or at some other place in the wheel, where this weight is equal to its being at E in this tube. Let us see if the superabundance of impulsive power in tube 2 is not enough to supply this defficiency in tube 4. E in tube 2 is nearly 120 lbs. K in this tube is nearly 120 lbs. K is now at E. E and K added, make nearly 240 lbs. This weight at E is sufficient for this tube, without the impulsive power which is given by the compression of F. Now, the upper part of F in this tube has been pressed down nearly 1 foot by the pressure of G, the upper D, and the upper C. The water which occupies the space which was occupied by the upper part of F, before it was compressed, is nearly 1 cubic foot, and weighs nearly 60 lbs. This weight, in its present position, gives the same impulsive power that it would give, if placed in tube 4, so that the centre of it would be nearly 2 3-4 feet below the lower part of E. By the compression of F in tube 2, nearly a cubic foot of water has been removed from the upper part of this tube, where it was situated below, and joining the upper C. The centre of its situation was nearly 3 3-4 feet from the top end of the tube. This water weighs nearly 60 lbs. Before its removal, as it was on the ascending side of the wheel, it gave opposing power. The removal of this weight, therefore, from this place, is equal to placing the same number of lbs. in the upper part of tube 4, the same distance from the top is, as the weight was from the top of tube 2, without removing this weight from the upper part of tube 2. If 60 lbs. had been placed in the upper part of tube 4, instead of removing the same number of lbs. from the upper part of tube 2, it would have been placed so that its centre would have been nearly 3 3-4 feet from the top of tube 4. Now, if this point, which is nearly 3 3-4 feet below the top of the tube, were nearly 2 3-4 feet above the upper part of E, then in this case, the removal of the 60 lbs just mentioned, from the upper part of tube 2, from the point just mentioned, and placing the other 60 lbs. just mentioned, in the lower part of this tube, at the point just mentioned, which has been done by the compression of F, are equal to placing nearly 120 lbs. at E in tube 4. Nearly 120 lbs. added to E, make nearly 240 lbs. This is enough to supply the deficiency of impulsive power in this tube while in its present position. Impulsive power besides this, has been given to tube 2, by the compression of F. The point just mentioned, which is nearly 3 3-4 feet below the top of tube 4, instead of being nearly 2 3-4 feet above the upper part of E, is nearly 3½ feet above it. Nearly 2 3-4 feet subtracted from nearly 3 1-2 leave nearly three fourths of a foot. This shows additional impulsive power, equal to what would be given by removing nearly 60 lbs. in tube 4 nearly three fourths of a foot towards the top of the tube. The remainder of impulsive power which has been given to tube 2, by the compression of F, is what was given by removing the upper C in it, which now gives opposing power, nearly 1 foot towards the centre of the wheel.

I have not attempted to make all the computation exact. In some places where the word nearly is used, the number is a little larger, in others, a little smaller, than the one mentioned.

Lead is nearly 11 times heavier than water. It may, therefore, be seen that I have made the bulk of the lead to be used for weights, except in fig. 5, much too small for a practical purpose. I observed not the mistake till the computation was nearly finished. But this will not affect my present object, which is to show the operation of the wheel according to my plan. We may, therefore, suppose as much of the lead to be exchanged for gold or platina, as will make the bulk correspond with the weight.

The X of the wheel is obtained by carrying up K in the tube, by the gradual expansion of the air in F, while ascending in it, and by the gradual descent in the tube of G, the upper D and the upper C, which is caused by the gradual compression of F, while descending by the revolving of the wheel.

At the completion of each revolution, all the weights, and all other parts of the wheel, are in very nearly the same position in which they were at the commencement of it. The impulsive power, and the opposing power, of the wheel are, at all times, in very nearly the same ratio. No increase or dimunition of either is caused by its revolving. Should it revolve a thousand years, at the end of this period it would move with the same force that it moved at the beginning of it, provided that it should be kept in order. This wheel would revolve if the earth should stand still. Therefore it moves independently of the motion of the earth. It would revolve in perfect vacuum. Therefore it moves independently of the elements of the earth. Should any say that it moves not independently of the elements of the earth, because air and water are used in its formation, I would reply that the air and water used in its formation are parts of the wheel itself. And if the wheel will revolve in vacuum, it must move independently of the elements of the earth. Also I would say, this wheel is made to revolve wholly by the gravitation of the earth. Therefore it may be truly and philosophically said that it will "move with a continuous motion, independently of the motion of the earth or of the elements thereof."

NOTE.—We cannot yet discover that our correspondent has made the least approximation towards a self-moving principle. The established law of nature, that as much power is required under all circumstances, to raise a given weight to a given height as the descent of such weight can possibly effect minus friction, should constitute a sufficient refutation of the whole theory. But we shall examine the subject further in connection, and report in our next.—ED.

© 1847 SCIENTIFIC AMERICIAN, INC

NEW YORK, APRIL 24, 1847.

Commissioners' Report.

We have the satisfaction to acknowledge the receipt of a copy of the annual report of the Commissioner of Patents for 1846, (which we should have noticed earlier, but unfortunately the volume was detained at another office for some days without our knowledge till we saw notices thereof in other papers.) This report occupies——pages, and is in many respects the most interesting that has ever been issued from that most interesting department; and that is as high a compliment as language will admit.

During the year ending December 31, 1846, the whole number of applications for patents received, was twelve hundred and seventy-two. The whole number of caveats filed during the same time was four hundred and forty-eight. The number of patents issued in 1846 was six hundred and nineteen, including thirteen reissues, five additional improvements, and fifty-nine designs. During the same period, four hundred and seventy-three patents expired.

The receipts of the office during the year have been $50,264, of which sum $11,087 have been repaid on applications withdrawn, &c. The aggregate of expenditures including money paid on withdrawals, and for the restoration of records, drawings, and models, is $46,158 71, leaving a balance to be carried to the credit of the patent fund of $4,105 45.

The subjects of application, and the classification thereof will be noticed in our next number

A Noble Effort.

An association of ladies in Philadelphia are making a new philanthropic effort, for the reclamation of females from the path of degradation, by proffering them—not an asylum of perpetuated degradation, by shaving their heads and subjecting them to menial penance —as is practised by an association in this city, but a home, employment and education, and encouraging them to assume the rational dignity of human beings. It is an acknowledged fact, that in general, the biggotted exclusiveness of those who profess to be moral reformists, operates as a direct barrier *against* the restoration to virtue of those who have once fallen. Let this barrier be removed and thousands of now hopeless females would voluntarily return to a moral course of life

An Excellent Project.

A company has been formed of an association of farmers and mechanics, in Washington county, the design of which is to secure to themselves all the advantages of a mutual reciprocity of benefits resulting from its operations, and is limited in its design to insure none but the safest kinds of property. By rejecting all hazardous applications, they can safely insure, as they do, at a lower rate than any other company in the State. In 20 months' time this company has issued over 6,200 policies, insuring property to the amount of $5,000,000. Companies formed in this way are not only more safe, but less expensive and otherwise preferable to the ordinary mode of insurance,

Mammoth Wire Rope.

A correspondent of the Atmospheric Railway Gazette, on passing the celebrated Galvanized Iron and Wire Rope Works of Mr. Andrew Smith, Millwall, Poplar, witnessed the shipment of a wire rope, which the manager of the works informed him was no less than 3600 yards long, 3 inches circumference, and weighed 7 tons 15 cwts., and ordered for an incline plane in Lanchasire, between Blackburn and Bolton. This is, no doubt, the the largest wire rope ever yet made. The wire was in bars of iron not more than ten days before.

We are told that of the 120,000 inhabitants in Boston, at least 50,000 attend no place of worship on the Sabbath, and about 9000 children, between 4 and 16, attend no school.

Albany Agate and Glass Works.

This manufactory will soon be in full operation, and will astonish the people of the United States and the world, by the extreme beauty of its manufactures. The door knobs are of the most beautiful agate. We say agate, and believe it to be far superior to the natural. It is a chemical discovery and possesses all the varied bounding lines and colors of the precious stones of the mines. We would not be sceptical if in this factory, the manufacture of the diamond was yet discovered. It is a piece of carbon, which by a chemical process of nature, is brought to its brilliant, incomparable diamond state. Chemistry may yet develope the secresy of its production. Certainly the Albany agate manufacture is a near approach to it. We have no doubt but that the sale of the agate door knobs manufactured in Albany, will not be confined to this continent, as there is nothing of the kind made in the old world. There is a kind of mineral door knob now made in this country, named agate, but it is no more to be compared to the Albany manufacture, than to compare the coarsest sandstone to the finest Italian marble. Glass of all colors, and the most beautiful crystal is to be made at the glass works, and from the specimens already made, we have no hesitation in saying that it will bear off the palm in all competition. The company formed for this new enterprise, are men of wealth and influence, and as far as it regards machinery and means, nothing will be wanting to ensure perfection in manufacturing, and success in business — *Mechanic's Journal.*

Steam Coaches.

Sir John Rennie, in his late Address to the Institution of Civil Engineers in London, states that "Great efforts have been made to perfect steam coaches, so as to enable them to travel upon turnpike roads—but without much success. The idea was suggested by Robinson to Watt, in 1759, and Watt patented it in 1784. Symington proposed it in 1786. Trevithick's patent of 1802 was the first high pressure engine that was actually made, and patents for improvements upon it have been numerous.— Bramah constructed a steam coach in 1822 for Griffiths, which was not successful. Gordon tried one in 1824, and Gourney, who was more successful, constructed some with boilers, having very small tubes; he attained a speed of 10 miles an hour on good turnpike roads, and ascended the steepest hills near London; he went from London to Bath and back, in 1831; and his steam carriages ran for four months between Cheltersham and Gloucester; but it was extremely difficult and too expensive to keep them in order. Hancock constructed several with boilers composed of thin metal chambers; they ran for some time with apparent success; but there were so many difficulties that they did not get into use.

Insensibility to Pain.

An exhibition of extraordinary interest to humanity occurred at the Massachusetts General Hospital on Saturday last, says the Surgical Journal. A patient was present—a man in advanced life—who we understand was laboring under paraplegia, for which Dr. Warren proposed the actual cautery. After the patient had inhaled the letheon, Dr. Warren run an iron rod, heated to a white heat, to the length of about two feet, up and down the back each side of the spine, burning two lines on one side and one on the other, and then carried it zig zag across, between the spinous processes, the same distance. The patient during this process was wholly unconscious of pain, under the severest test to which it could be subjected—that of a hot iron applied to the naked skin.

Fasting.

It is recommended by many able physicians that fasting is a means of removing incipient disease, and of restoring the body to its customary healthy sensations. Howard, the celebrated philanthropist, says a writer, used to fast one day in every week. Dr. Franklin, for a period, did the same. Napoleon, when he felt his system unstrung, suspended his wonted repast, and took his exercise on horseback. We entertain no doubt but if moderation and temperance were observed in our diet and beverage, a vast amount of sickness and suffering would be prevented.

Cincinnati and Hamilton Railroad, and Improvements in Ohio.

The following extract of a letter from a correspondent of the Railroad Journal, goes to illustrate the progress of improvement in Ohio.

"About the 1st of next month I shall commence the location of the Cincinnati and Hamilton railroad—a preliminary survey of which I made last fall, a year ago, before a charter was obtained. The line passes through the *finest portion* of Ohio—and, indeed, of the whole west—unsurpassed in fertility and water power. At this point, by the exertions of a few, one of the finest water powers west of the Alleghany mountains, has been created, capable of driving 180 mill stones of 4 1-2 feet diameter each, much of which is now occupied; and our town is fast filling up with an enterprising population. The power has cost us about $50,000. The races, reservoirs, &c., are on a magnificent scale, and Hamilton must be, at no distant day, to Cincinnati, what Lowell is to Boston. Hamilton is delightfully located on the Great Miami river, and as yet has not created much noise in the world; but when our railroad is finished, and our water power taken up, you will then hear favorable accounts of Hamilton. The minimum discharge of the Great Miami river is 25,000 cubic feet of water per mimute; the actual fall at this place 29 feet. The distance from this point to Cincinnati, by the route of our railroad, is about 22 miles; no grade greater than 25 feet per mile. We are connected with Cincinnati by a canal and two turnpike roads; the roads are constructed with broken stone and gravel, are generally in fine order and much travelled."

The following from a Cincinnati paper further illustrates the prospects and business facilities of this road.

"The charter of this road was granted by the legislature of 1845-6. Sometime in the fall of the last year, books were opened for the taking of stock, and a sufficient amount being subscribed for that purpose, the company organized on the 1st of January. "The route contemplated is along the Millcreek valley; (the terminus of the road to be located at some point in the northwestern part of the city,) through the towns of Carthage and Springdale, thus avoiding the hills. The surveys are ordered to be commenced on the 1st day of April, and it gives us pleasure to state, that stock enough is already subscribed to justify the letting of contracts for the grading of the entire road. The grading will most probably be put under contract as early as next May, and the work pressed forward to completion with all possible despatch.

"This road will pass through one of the most fertile regions on the face of the globe—a country unsurpassed for its agricultural products and manufacturing advantages. The work is then certainly destined to become one of the most important arteries which furnish the life blood and healthy action of our city.— The town of Hamilton with its extensive hydraulic power, and manufacturing facilities, is without doubt, destined to occupy as important a position to this city as Lowell does to Boston. "The travel between these two points already demands additional facilities for its accommodation. There are now three daily lines of stages, one omnibus, and canal packets, running on the route, which convey about 75 passengers. besides travel by private conveyance, which brings the number up to 100 daily, and the number is rapidly increasing.

"As regards the freight transportation, we have it from good authority, that during the past winter, it was no uncommon thing for over 200 large covered wagons, transporting the products of the great agricultural region west, and returning with goods from the city, to pass through the towns of Hamilton and Rossville, daily.

"Should the contemplated railroad from this city to St. Louis go on, this work will certainly constitute a portion of that road. The route through Hamilton, Rossville, Eaton, Richmond, Indianapolis, and so on westward, being decidedly the most eligible. We trust that our citizens will furnish all the "aid and comfort" within their power, to push forward this work to a speedy completion."

A dealer in Philadelphia, advertises " Taylor candles for the illumination," warranted " not to *run*."

Value of Coins.

It may be gratifying to some of our readers to know the value of Foreign Coins, as fixed by a law of Congress passed last May, for the Custom House Standard. It is as follows:—

The specie Dollar of Sweden and Norway, at one hundred and six cents.

The specie Dollar of Denmark, at one hundred and five cents.

The Thaler of Prussia and Nort' rn State of Germany, at sixty-nine cents.

The Florin of the Southern States of Germany, at forty cents.

The Florin of the Austrian Empire, and the City of Augsburg, at forty-eight and a half cents.

The Lira of the Lombardo-Venitian Kingdom, and of Tuscany, at sixteen cents.

The Franc of France, and of Belgium, and the Lira of Sardinia, at eighteen cents six mills.

The Ducat of Naples, at eighty cents.

The Ounce of Sicily, at two dollars and forty cents.

The Pound of the British Provinces of Nova Scotia, New Brunswick, Newfoundland and Canada at four dollars.

The Ordnance Department.

During the last year the Department had on hand 754,560 lbs. of Sulphur, and 3,368,681 lbs. of Salt Petre. This amount, with Charcoal, would turn out 5,000,000 lbs. of gun powder. At Harpers' Ferry and Springfield there were 26,468 percussion muskets manufactured, and 55,923 appendage pieces. The army of the Rio Grande has had in 1846, 40 sea coast and garrison cannon, 32 and 24 pounders; 28 field and siege cannon; 10 siege mortars complete; 1878 ten and eight inch shells; 4,000 rounds of ammunition for garrison guns, 44,-720 for field and siege guns; 12,429 muskets; 3,421 rifles; 5,440 carbines and pistols; 3,218 sabres and swords, 21,706 sets of accoutrements; 3,778,278 cartridges for small arms, and 600 barrels of powder.

Lake Michigan.

This lake is 400 miles long, 60 in breadth, and well ascertained to average 900 feet in depth. This being true, it contains a volume of water sufficient to fill a river 24,000 miles long, one mile wide, and 900 feet deep! Or it would make a river as large as the Mississippi—supposing it to be one mile wide and to average ten feet in depth—that would reach around our globe more than *ninety* times!— But carrying it still farther, it would make a volume of water ten feet in depth, and one hundred feet in width (as large as Passaic River) that would reach nearly 5,000 times around our globe, or 108,540,000 miles! more than the distance between our earth and the sun!

Advantages of two Legs.

It is a shrewd remark of a distinguished French philosopher, Cabinis, that few animals are better fitted for speed than man. Savages can, in many cases, run down the animals which they make their prey; and in Europe, professed pedestrians will outstrip the fleetest horse, who only succeeds by reducing his four legs to two, in the act of galloping. The hare, the stag, and the grey hound follow the same principle; and the ostrich, the cassoway, and the bustard, with only two legs, will, in most cases, outstrip the best blood horse.

It is estimated that over 35,000 letters, and about 200,000 newspapers, pass daily through the post office in New York.

To New Subscribers.

Those subscribing to the Scientific American will be furnished, If desired, with all the back numbers of the present volume. Bound together at the end of the year, they will form a handsome and valuable work.

THE
SCIENTIFIC AMERICAN.

Persons wishing to subscribe for this paper, have only to enclose the amount in a letter directed (post paid) to

MUNN & COMPANY,

Publishers of the Scientific American, New York City

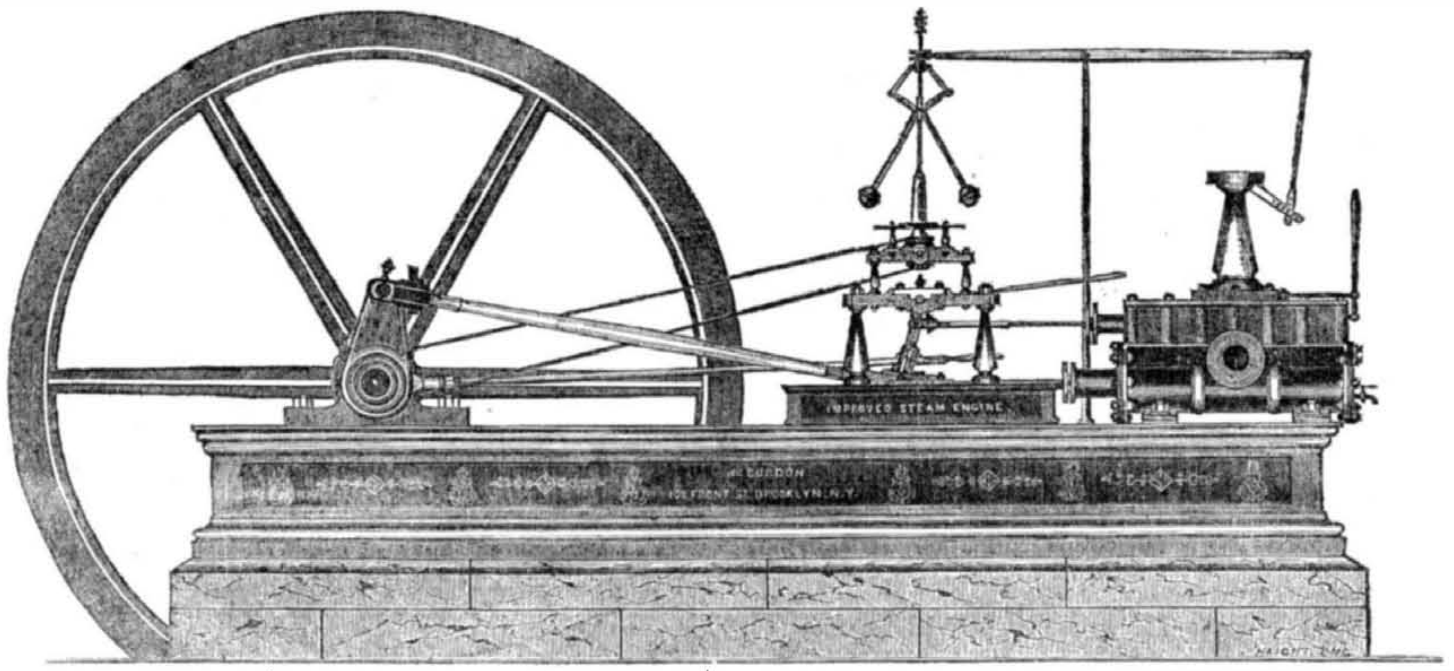
Terms.—$2 a year; ONE DOLLAR IN ADVANCE—the remainder in 6 months.

Postmasters are respectfully requested to receive subscriptions for this Paper, to whom a discount of 25 per cent will be allowed.

Any person sending us 4 subscribers for 6 months, shall receive a copy of the paper the same length of time

© 1847 SCIENTIFIC AMERICIAN, INC

IMPROVED STEAM ENGINE.



With much satisfaction to ourselves, we here present a fair longitudinal elevatio of one of the superb steam-engines manufactured by Mr. William Burdon, of Brooklyn. The bed-plate and frame is entirely of iron, no wood-work being used in any of Mr. B.'s engines.—The piston and connecting rods are of solid cast steel, and the principal bearings are furnished with oiling cups, so that the engines do not require replenishing with oil oftener than once a week. We have recently had the pleasure of visiting the several departments of Mr. Burdon's steam engine manufactory which is located at No. 100 Front street, and is probably the most extensive establishment of the kind in the United States. It occupies a space of about 150 feet square embracing three large brick buildings, in one of which is an iron foundry in which the heaviest castings are produced. We observed in the pattern shop, the bed-plate pattern of an enormous engine thirty five feet in length to be finished in a style similar to that represented above. In one of the extensive halls are some twenty or more engines of from 4 to 12 horse powers, and of the most perfect style of finish, but of diverse patterns; and we anticipate the pleasure of presenting our readers with views of several different patterns and fashions of engines and other machinery from this manufactory in future numbers. It is inexpedient to specify at this time, all the minutia of improvments introduced in these engines; but we believe them to be more perfect in construction than any others that we have seen; and having had the pleasure of several years personal aquaintance with Mr. Burdon, and knowing him to be a scientific and thorough mechanic, we are confident that all who send him their orders for engines, will be perfectly satisfied with both quality and prices. We are informed that the expense of fuel for the 20 horse power engine by which the machinery of the workshops are driven is only 75 cents per day.

Redemption Institute at Hamburgh.

Some of the facts connected with the "Redemption Institute" at Hamburgh, (which we find in "Mann's Educational Tour,") are so extraordinary, and illustrate so forcibly the combined power of wisdom and love, in the reformation of children, that we cannot forbear detailing them.

The school of Mr. J. H Wichern is called the "Rauhe Haus," and is situated four or five miles out of the city of Hamburgh. It was opened for the reception of abandoned children of the very lowest class—children brought up in the abodes of infamy, and taught, not only by example but by precept, the vices of sensuality, thieving, and vagabondry—children who had never known the family tie, or who had known it only to see it violated. Hamburgh having been, for many years, a *commercial* and *free* city, and, of course, open to adventurers and renegades from all parts of the world, has many more of this class of population than its own institutions and manners would have bred. The thoughts of Mr. Wichern were strongly turned towards this subject while yet a student at the university; but want of means deferred him from engaging in it, until a legacy, left by a Mr. Gercken, enabled him to make a beginning in 1833. He has since devoted his life and all his worldly goods to the work. It is his first aim, that the abandoned children whom he seeks out on the highway, and in the haunts of vice, shall know and feel the blessings of *domestic* life; that they shall be introduced into the bosom of a family; for this he regards as a Divine institution, and therefore the birthright of every human being, and the only atmosphere in which the human affections can be adequately cultivated. His house, then, must not be a prison, or a place of punishment or confinement. The site he had chosen for his experiment was one enclosed with high strong walls and fences. His first act was to break down these barriers, and to take all bolts and bars from the doors and windows. He began with three boys of the worst description—and within three months the number increased to twelve. They were taken into the bosom of Mr. Wichern's family:—his mother was their mother, and his sister their sister. They were not punished for any past offences, but were told that all should be forgiven them if they tried to do well in future. The defenceless condition of the premises was referred to, and they were assured that no walls or bolts were to detain them; that one cord only should bind them, and that the cord of love. The effect attested the all-but-omnipotent power of generosity and affection. Children, from seven or eight, to fifteen or sixteen years of age, in many of whom early and loathsome vices had nearly obliterated the stamp of humanity, were transformed not only into useful members of society, but into characters that endeared themselves to all within their sphere of acquaintance. The education given by Mr. Wichern has not been an æsthetic or literary one. The children were told, at the beginning, that labor was the price of living, and that they must earn their own bread, if they would secure a comfortable home. He did not point them to ease and affluence, but to an honorable poverty, which, they were taught, was not in itself an evil. Here were means and materials for learning to support themselves; but there was no rich fund or other resources for their maintainance. Charity had supplied the home to which they were invited; their own industry must supply the rest. Mr. Wichern placed great reliance upon religious training; but this did not consist in giving them dry and unintelligible dogmas. He spoke to them of Christ, as the benefactor of mankind, who proved, by deeds of love, his interest in the race,—who sought out the worst and most benighted of men, to give them instruction and relief, and who left it in charge of those who came after him, and wished to be called his disciples, to do likewise.—Is it strange that, enforced by such a practical exemplification of Christian love as their Fatherly Benefactor gave them in his every-day life, the story of Christ's words and deeds should have sunk deeply into their hearts, and melted them into tenderness and docility?—Such was the effect. The most rapid improvement ensued in the great majority of the children, and even those whom long habits of idleness and vagabondry made it difficult to keep in the straight path, had long seasons of obedience and gratitude, to which any aberration from duty was only an exception.

Instruction is given in reading, writing, arithmetic, singing, and drawing, and, in some instances, in higher branches. Music is used as one of the most efficient instruments for softening stubborn wills, and calling forth tender feelings; and its deprivation is one of the punishments of delinquency. The songs and hymns have been specially adapted to the circumstances and wants of the community, and it has often happened that the singing of an appropriate hymn; both at the gatherings in the mother's chamber, which were always, more or less, kept up, and in the little chapel, has awakened the first-born sacred feeling in obdurate and brutified hearts. Sometimes a voice would drop from the choir, and then weeping and sobbing would be heard instead. The children would say they could not sing—they must think of their past lives, of their brothers and sisters, or of their parents living in vice and misery at home. On several occasions the singing exercises had to be given up Frequently the children were sent out to the garden to recover themselves. An affecting narrative is recorded of a boy who ran away, but when Mr. Wichern pursued, found and persuaded to return. He was brought back on Christmas eve, which was always celebrated in the mother's chamber. The children were engaged in singing the Christmas hymns when he entered the room. At first they manifested strong disapprobation of his conduct, for he was a boy to whose faults special forbearance had been previously shown. They were then told to decide among themselves how he should be punished. This brought them all to perfect silence, and after some whispering and consulting together, one, who had formerly been guilty of the same fault of ingratitude, under still less excusable circumstances, burst out in a petition for his forgiveness. All united in it, reached out to him a friendly hand, and the festival of the Christmas eve was turned into a rejoicing over the brother that had been lost, but was found. A day or two after he was sent away on an errand to the distance of half a mile. He was surprised and affected by this mark of confidence; and from that time never abused his freedom, though intrusted to execute commissions at great distances. But he could never after hear certain Christmas hymns without shedding tears; and long subsequently, in a confidential communication to Mr. Wichern, respecting some act of his former life, he referred to the decisive effect of that scene of loving kindness upon his feelings and character.

History of Architecture.

(*Continued from No.* 30.)

At the end of the Peloponnessian war, the perfection of architecture was gone. A noble simplicity had given place to excess of ornament This was the character of the art at the time of Alexander, who founded a number of new cities. But a strict regularity hitherto prevailed in the midst of this overcharged decoration. After the death of Alexander, 323 B. C., the increasing love of gaudy splendor hastened the decline of the art more and more. In Greece, it was afterwards but little cultivated, and, in the edifices of the Seleucidæ in Asia, and of the Ptolemies in Egypt, an impure taste prevailed. The Romans had no temples, or similar public edifices, equal to the Grecian master pieces, although they had early applied their industry to other objects of architecture, viz. to aqueducts and sewers. The capitol and the temple of the capotiline Jupiter were erected by Etruscan architects But soon after the second Punic war, 200 B. C., they became acquainted with the Greeks. Sylla was the first who introduced the Grecian architecture to Rome; and he, as also Marius and Cæsar, erected large temples in this and other cities. But under Augustus the art first rose to the perfection of which it was capable at that time.—He encouraged the Greek artists, who had exchanged their country for Rome, and erected, partly from policy, many splendid works of architecture. Agrippa built temples (the Pantheon,) aqueducts, and theatres. Private habitations were adorned with columns and marble. Splendid villas were built, of which the Romans often possessed several. The interior was adorned with works of art, obtained from Greece. The walls were covered with thin marble plates, or were painted, and divided into panes, in the middle of which were represented mythological or historical subjects.—They were also surrounded with the most elegant borders. These borders were what we call *grotesque*. Almost all the successors of Augustus embellished the city more or less, erected splendid temples and palaces, and adorned, like Adrian, even the conquered countries with them. Constantine the Great transferred the imperial residence from Rome to Constantinople, so that nothing more was done for the embellishment of Rome, But. at the time when the Romans received the art from the Greeks, it had already lost, among the latter. its perfection and purity. In Rome it rose, indeed, in a short time, to its former height, but soon degenerated, with the continually increasing magnificence of the Emperors, into extravagance of ornament. About this time the Roman or Composite column originated, which was employed in temples and splendid buildings. In the time of Nero, whose golden palace is celebrated, the exterior and interior of the buildings were profusely adorned. Adrian, who encouraged artists as much as possible, was not able to restore a noble and simple taste in architecture. Instead of imitating the beautiful models already existing, the endeavor, in his time, was to invent new styles, and to embellish the beautiful more

(*To be Continued.*)

We have no recent news of much interest, either from Europe or Mexico.

© 1847 SCIENTIFIC AMERICIAN, INC

TO CORRESPONDENTS.

(For certain reasons we have adopted the practice of giving the name of the State with the initials of correspondents.)

"A. H. B. of Mass."—You have taken the right course, and if you have not been anticipated, your invention must prove very valuable. We shall notice it under the head of "New Inventions" if you have no objections. You may expect an answer from the Patent Office within a week.

"T. M. P."—The books were received, but not in season to be acknowledged as you requested. Accept our thanks for your liberality, and "wait a little longer."

"A. H. of Mich."—Your plan for a stump-lifting machine is good as far as it goes, but evinces more scientific ability than mechanical knowledge. It would answer very well to raise small stumps in light soil; but to lift a large white oak, or hemlock stump would require at least twenty men at the crank of your machine, even with a large screw wheel. We have known chains of 1 1-4 inch iron, to be broken by the process. We should be inclined to give the preference to the plan fig. 3 in your drawing. By varying the proportions of the parts of your machine, employing screws with small thread, &c., we think you may succeed. Your invention is patentable, and we can furnish an engraving for $3. The Patent will cost $45. If your friend will furnish the expense of the patent, for a joint interest, on one half of the right, it will be fair terms for you.

"H. C. of Alabama."—We are pleased with the novelty of your horsepower, but we should think it advisable to make a horse-path on the circular rail, in which case the horses, being attached by the draught connection to something permanent, would apply an equal power, and it would be less injurious than walking in a circle. The cost of an engraving would be $5, which you may remit in advance, if agreeable.

"O. B. of F. C.—N. Y."—Your communication is very interesting and will be noticed in full next week.

"T. J. D. of Ohio."—We require more time to examine your plans, especially as we may be constrained to spoil some of your favorite theory.

"W. S. T. of Ct."—We have not received the model of which you wrote; nor have we seen Mr. U. Please inform us about it.

"E. C. of P. New York," "H. H. of Mass," and "J. P. of New Hampshire," will receive attention next week.

"E. B. of J.—N. Y."—The papers will be forwarded as you request. Your hydraulic engine will be duly noticed, though you have not authorized an engraving. Your poetry will be heard from.

"T. C. of Mass."—We shall write by mail.

"O B. of Maine," "E. G. of Mass," "A. N. of Pa," too late for notice this week.

Let 'em Alone.

Catharine Keith has been fined $20, at St. Louis, Mo. for chastising her daughter, who is a married woman. When children get husbands and wives, mothers ought to give the whipping over to other hands.

Profitable Speculation.

Mr. John B. Gough was lately engaged to lecture at Troy for $25, and the receipts for the evening were $300, at a shilling ahead.

Santa Anna, in his dispatches, intimates that he won the battle at Buena Vista three times, but that Gen. Taylor was such a stubborn old Yankee that he did not know when he was whipped.

A Father of an interesting family near Detroit, who chews $14 worth of tobacco yearly, stopped his only newspaper because he could not afford it.

It is an extraordinary fact, that when people come to what is called high words, they pretty generally use low language.

Fifty thousand dollars has been subscribed, for the benefit of the Vermont University, at Burlington.

Six thousand five hundred dollars have been appropriated by the Common Council to improve and beautify the Fountain in the Park.

The price of bread is now higher in Paris than it has been before for the last 20 years.

Enterprize in Cincinnati.

It is contemplated to erect in Cincinnati a large and complete sugar refinery, for the manufacture of every description of refined sugars upon the most approved principles, and combining all the late improvements in this important branch of business. The whole cost of putting up an establishment complete in all its parts adequate to the wants of the trade, is estimated at $100,000.

The St, Louis Reveille.

This brilliant and excellent paper appeared last week in beautiful new type, and with appropriate embellishments, while its columns were illuminated with triumphant details of the recent victories, and successes of the American arms in Mexico. The paper is of the first class, and this number should be carefully preserved as a treasure for the benefit of posterity.

Recruiting by Telegraph.

Lieutenant McGarry, of the Rochester Volunteers, received a telegraph communication from Canada on Wednesday from a person desirous of volunteering in the company now organizing for Mexico. He was told to come on immediately.

Preserving Flowers.

Dr. Fascale, of Sweden, is said to have invented a plan for preserving flowers, for years, as fresh as when they are plucked. A quantity of roses thus kept in a state of preservation since 1845, were exhibited by him before the Academy of Science in Stockholm.

Intelligence Extraordinary.

Fanny Ellsler is married. Her husband's name is Monzani; he is a dancer.—*Ex. Paper.* So is Dorcas Wiggins married! Her husband's name is Potkins; he is a blacksmith.

Two of the Elephants belonging to Raymond & Waring, and valued at $30,000, have been drowned in attempting to swim across the Delaware near Philadelphia.

FIRST VOLUME.

We would inform those who have been disappointed in procuring the whole of the first volume of the Scientific American, that we have recently come into possession of a few complete sets of the last half, (i e. from Nos. 26 to 52 inclusive) which we will dispose of at the subscription price, viz. $1 per set.

ADVERTISEMENTS.

☞ This paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

Advertisements are inserted in this paper at the following rates:

One square, of eight lines one insertion,	$ 0 50
" " " " two do.,	75
" " " " three do.,	1 00
" " " " one month,	1 25
" " " " three do.,	3 75
" " " " six do.,	7 50
" " " " twelve do.,	15 00

TERMS:—CASH IN ADVANCE.

GENERAL AGENTS
FOR THE SCIENTIFIC AMERICAN.

New York City,	Geo. Dexter.
" "	Wm. Taylor & Co.
Boston,	Messrs. Hotchkiss & Co.
Philadelphia,	George W. Adriance.
Boston,	Jordon & Wiley.

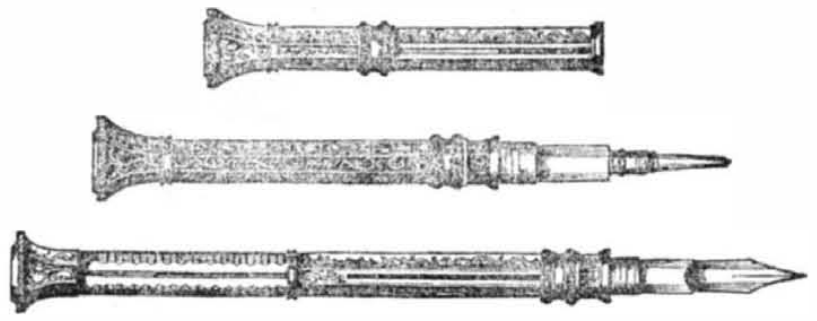
LOCAL AGENTS.

Albany,	Peter Cook.
Baltimore, Md.,	S. Sands.
Cabotville, Mass.,	E. F. Brown.
Concord, N. H.	Rufus Merrell.
Hartford, Ct.,	E. H. Bowers.
Lynn, Mass,	J. E. F. Marsh.
Middletown, Ct.,	Wm. Woodward.
Norwich, Ct.,	Safford & Parks.
New Haven, Ct.,	E. Downes.
New Bedford, Mass.,	Robinson, Parsons & Co.
Newark, N. J.,	J. L. Agens.
Newark, N. J	Robert Kashaw.
Providence, R. I.,	H. & J. S. Rowe.
Rochester, N. Y.	D M. Dewey.
Springfield, Mass.,	Wm. B. Brocket.
Salem, Mass.,	L. Chandler.
Saco, Me.,	Isaac Crooker.
Troy, N. Y.,	A. Smith.
Taunton, Mass.,	W. P. Seaver.
Worcester, Mass.,	S. Thompson.
Williamsburgh,	J. C. Gander.
Dover, N. H.	D. L. Norris.

CITY CARRIERS.

Clark Selleck, Squire Selleck.

Persons residing in the city or Brooklyn, can have the paper left at their residences regularly, by sending their address to the office, 128 Fulton st., 2d floor.



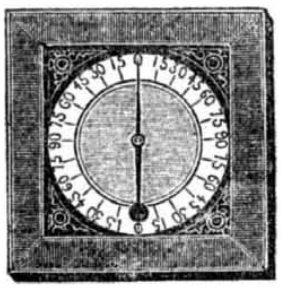
Bagley's Patent Extension Penholder and Pencil.

THIS is the most compact, complete, convenient and useful pocket companion ever offered to the public The multiplicity of its usefulness and the smallness o its size, renders it a perfect Multum in parvo.

In the short space of 2 3-4 inches is contained a Pen, Pencil, and a reserve of leads, and by one motion slides either the pen or the pencil out and extends the holder to six inches, which is but little more than half the length, when shut up, of the common pen holder, but when extended is one fourth lon ger. This article is secured by two patents, and the Manufacturers are now read to receive orders for them in any quantity, either of Gold or Silver, together with his celebrated ever pointed Gold Pens, which need no proof of their superiority except the increased demand for the last six years, and the numerous attempts at imitation.

A. G. BAGLEY, No. 189 Broadway.
New York, Sept. 1, 1846. o24 tf

Plumb and Level Indicator.



THE UTILITY of this invention so far exceeds the expectation of the inventor that he has been induced to engage in the manufacture of them to a large extent. It is understood from the engraving, that the proper position of the instrument is vertical, and that the weight of the ball will keep the index in a perpendicular position, so that either the bottom or side of the frame being placed against a horizontal, vertical or oblique surface, the index will show its inclination, (if there be any) in degrees.

Besides its utility, the Indicator possesses a share of elegance, consisting of a neat mahogany frame 9 inches square and glass, encasing a lithographic dial with an appropriate picture in the centre, and the movement is so free that a variation of one fourth of a degree is indicated. They may be sent to any part of the U. S. by Express.

For sale, wholesale and retail, at this office. Address MUNN & CO (post paid) ☞Price $1 single. A discount to dealers. m13 tf

BOOKS! BOOKS!!

☞We would inform those who are desirous of procuring **MECHANICAL AND SCIENTIFIC BOOKS,** that we have made arrangements whereby we can furnish almost any work, at the lowest prices. We have Scribner's Mechanic, and Scholfield's Geometry, constantly on hand.

Price of Scribner's Mechanic, tuck & gilt edge	$1,50
" " plain, bound in leather,	$1,12
" of Scholfield's Geometry (per vol.)	$1,50

☞The trade furnished at a discount.

MUNN & CO., Publishers,
F6 128 Fulton street, N. Y, 2d floor.

Branwhite's Patent Color Discriminator.

☞This ingenious invention consists of a neat box in which are arranged in a scientific manner, all the most brilliant colors, THIRTY FIVE IN NUMBER represented by as many convex discs of the FINEST SILK. Each disc bears a number referring to an explanatory scale. The attention of storekeepers, millinerS, and indeed all who have occasion to vend or purchase colored articles of any kind, is respectfully invited to this new and valuable discovery. More trouble can be saved by its use in ONE DAY than four times the amount of its cost. For sale, wholesale and retail, at the office of the Scientific American 128 Fulton st., 3 doors from the Sun Office.

They may be sent by Express, to any part of the United States. oct31

To Engineers, Architects, Builders, &c.

WANTED to engage as Clerk of the Works under an Engineer or Architect, or as Foreman to a Builder. The advertiser has been engaged in London during the last ten years as a principal foreman to an extensive builder and contractor, and has been accustomed to make detail drawings and setting out work generally, particularly Joiners and Carpenters work. For further particulars apply at this office. a10 3t*

Foster's Window Shades.

THE NEW (intended) PATENT FRICTION WIN DOW SPRING, recently invented by G P. Foster of Taunton, Mass. is now ready and for sale as below. It consists of a spring attached to the sash made to bear upon the inside of the window frame, and thereby holds the sash in any position with equal strength of a cord and weight.

These convenient springs have been tested and are known to supersede every other spring yet invented, for convenience, while, for durability, they will last much longer than any kind now in use.

They may be seen at the hardware store of W. N. Seymour & Co. No. 4 Chatham Square, and may be had upon application to James Lancaster, Agent for this city, at the same place, who will give full instructions in adjusting them. a24 4t*

C. KNOX,

HAT AND CAP MANUFACTURER AND DEALER.
128 Fulton street, N. Y.

☞A large assortment of the Spring style now on hand. m27 1m*

Dr. S. B. SMITH'S Torpedo Magnetic Machine.

THE CURES PERFORMED BY THIS NEW and singular machine, which obtained the premium and medal at the Fair of the American Institute, are multiplying rapidly throughout the United States. A few among the many cures are hereunto annexed:

State of New York, City of New York, SS.—On the 16th day of February, A. D. 1847, appeared before me Doctor S. B. Smith, who being by me duly sworn, did depose and say that the following certificates and extracts from letters are each and every one of them true as received from the several persons whose names are thereunto attached, and that the same are a portion of the many testimonies of the cures by his Magnetic Machine.

Affirmed before me, this 16th day of Feb. 1847.
DAVID S. JACKSON,
Acting Mayor of the City of New York.

Cured of the Dropsy, Jaundice, and Contraction of the Leg: Sarah Sanger, 154 Delancey st., N. Y.

Cured of Lock Jaw: A case under the care of A D. Bacon, M D., Annisquam, Mass.

Case of Scrofula and Palpitation of the Heart: Two of Dr. Smith's own children, the scars still to be seen.

Cured of Spinal Complaint and Weak Eyes; Cases attested to by H. Peck, New London, Huron County, Ohio.

Cured of Rheumatism: Several cases attested to by J. Miller, of New London, Ohio.

For further particulars relative to the wonderful cures performed by these wonderful machines, we would refer you to the inventor, who has original letters from those cured, that he would be pleased to show at his office.

Price $12, neatly put up in mahogany cases, with a book of explanation to accompany.

Orders from any part of the United States, promptly attended to. Address
F27 tf MUNN & CO. (post paid) New York.

NOTICE.

TO COTTON & WOOLEN MANUFACTURERS.

THE subscriber will furnish to order his Improved Cotton Willow and Wool Picker. It is warranted to do more work and much better in quality, with less outlay of power than any other machine in use, also the repairs required are much less on the machine itself and the succeeding machinery, the cotton or wool being so perfectly opened there is much less strain upon the card, clothing, &c., &c. It has been introduced into more than 60 of the best Mills in New England and quite a number of them have stated to me that they save the expense of the machine in a few months in WASTE ALONE, when much stock is used. EDMUND BACON,
Superintendant of Portsmouth, N. H.
d12 6m* Steam Mills.

PATENT AGENCY AT WASHINGTON.

ZENAS C. ROBBINS,
Mechanical Engineer and Agent for procuring Patents.

WILL prepare the necessary Drawings and Papers for applicants for Patents, and transact all other business in the line of his profession at the Patent Office. He can be consulted on all questions relating to the Patent Laws and decisions in the United States or Europe. Persons at a distance desirous of having examinations made at the Patent Office, prior to making application for a patent, may forward (post paid, enclosing a fee of five dollars) a clear statement of their case, when immediate attention will be given to it, and all the information that could be obtained by a visit of the applicant in person, promptly communicated. All letters on business must be post paid, and contain a suitable fee, where a written opinion is required.

Office on F street opposite Patent Office.

He has the honor of referring, by permission, to Hon. Edmund Burke, Com. of Patents; Hon. H. L Ellsworth, late do; H. Knowles, Machinist, Patent Office; Judge Cranch, Washington, D. C.; Hon. R. Choate, Mass. U. S. Senate; Hon. W. Allen, Ohio, do; Hon. J. B. Bowlin, M. C. Missouri, Hon. Willis Hall, New York; Hon. Robert Smith, M. C. Illinois; Hon. S. Breese, U. S. Senate; Hon. J. H. Relfe, M. C. Missouri; Capt. H. M. Shreve, Missouri. j23

TO PATENTEES AND MANUFACTURERS.

THE undersigned, Forwarding and Commission Merchants, located at Harrisburg, the seat of Government of Pennsylvania, solicit consignments of Groceries, Merchandise, Domestic Manufactures, and useful Patent articles.

They are in the midst of Flouring Mills, Forges, Furnaces, Coal Mines, Canals, Rail Roads, and one of the best agricultural districts in the Union.

☞One of the undersigned is a machinist of many years experience, and will give personal attention to patent machinery.

Letters post paid will receive immediate attention.
FUNK & MILLER
Harrisburg, Pa., Feb. 14. F20 13t*

Lap-welded Wrought Iron Tubes

FOR TUBULAR BOILERS,

From 1 1-4 to 6 inches diameter, and any length, not exceeding 17 feet.

THESE Tubes are of the same quality and manufacture as those extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee,
d26 28 Platt street, New York.

Engraving on Wood

NEATLY AND PROMPTLY EXECUTED AT the Office of the Scientific American, 128 Fulton st, three doors from the Sun Office. Designs DRAWINGS of all kinds for PATENTS, &c., also made, as above, at very low charges.

© 1847 SCIENTIFIC AMERICIAN, INC

CURIOUS ARTS

(Since the early numbers of this paper have been *out of print*, there has been a constant demand for them, on account of certain instructions in the arts of painting, plating, galvanism and various other curious arts and interesting experiments. On this account arrangements were made to re-print a few deficient numbers—but the call for remaining numbers was so rapid, that subsequent to the arrangements made with the present publishers, they ascertained that the reprinting of all the deficient numbers would cost at least seven hundred dollars; and therefore thought it more advisable to republish in this volume, some of the articles so much called for, from the first volume, with such revisions and improvements as may appear expedient. We here commence the series on *painting*, and shall appropriate a part of this 8th page of each number to the reprint of such articles as are most in demand.)

The Art of Painting.

There is something peculiarly fascinating in the art, or at least in the practice of painting, and few if any can be found, who have not a fondness for it. Plain painting appears very simple in its process, and thousands of people, without either instruction or experience in the business, have ruined the appearance of their rooms, doors, carriages, &c., by attempting to paint them, instead of employing a workman to do it. In such cases the amateur usually procures a little paint, *ready mixed*, at a shop—not considering that no painter can know how to prepare and temper a color properly unless he is acquainted with the state and circumstances of the work to which it is to be applied,—and having borowed a brush for the purpose, he applies the paint with all the skill that *nature* has given him: he is delighted to see how readily he can produce a change of color, and perhaps succeeds very much to his own satisfaction; but yet leaves it in a state that will not only readily appear decidedly ridiculous to every beholder who is acquainted with even the first principles of the art, but that will defy the skill of the best painter to make the work look decent ever afterward. To remedy these evils, and enable every reader to indulge himself in the occasional employment of painting for his own amusement or convenience, and to enable ordinary practitioners in the art to attain to higher improvements, and embrace a more extensive knowledge of the various branches, are our main objects in presenting a series of instructive essays on this interesting art.

To commence with the first principles of painting in its most simple form, we have only to procure a dilute mixture of white clay, red or yellow earth, (called ochres,) or of ground charcoal and water; and spread it over the work to be painted, with a sponge or a bunch of moss or grass. The idea readily occurs, however, that this paint would become more permanent, by the addition of a little glue, or mucilage of any kind. The art of painting in *water colors* has been brought to great perfection by means of well-formed brushes of various sizes, and a great variety of fine and beautiful colors, and is much in use for painting walls of rooms, plain or figured; also, panoramic scenery, and a great variety of ornamental work. This painting, when the colors are properly tempered with glue and certain other materials, becomes hard and durable, if not exposed to water or moisture; but it is of no value on work that is exposed to the weather, or that often requires washing. We shall now leave the subject of painting in water colors—to be resumed in a future number—and proceed to the more important subject of plain painting in *oil colors*, or with paints ground in oil.

The principal paints used in oil painting, are white lead, yellow ochre, chrome yellow, chrome green, French green, red lead, red ochre, Venetian red, vermilion, lake Prussian blue, ultra marine, lampblack and ivory black. There are twenty or more other colors, diverse from the above and from each other; but these can hardly be said to be in common use.

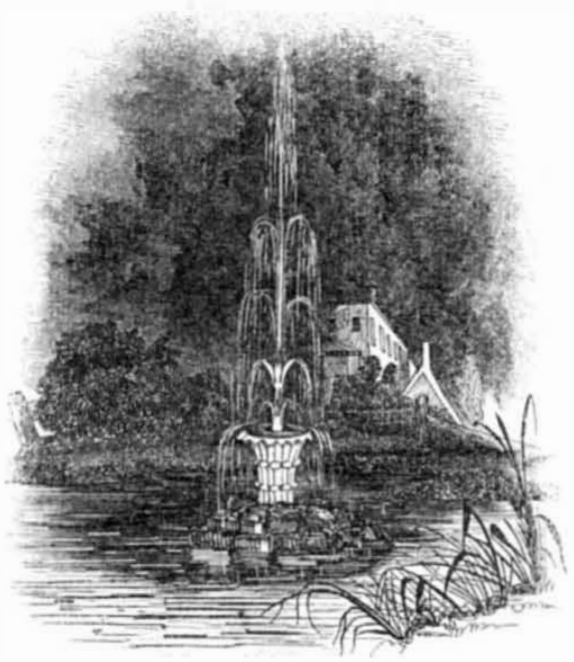
Most of these colors can be procured ready ground in oil at the principal paint stores: but it is in general, more convenient for the amateur, to procure the colors in a dry state and grind them himself, especially if small quantities only are required. The ordinary mode of grinding paints is to put a small quantity on a smooth stone, with a small quantity of linseed oil sufficient to moisten it, and grind by passing another stone (termed a muller,) over it till it is sufficiently fine for use. In this case a sufficient quantity of oil should be mixed with the paint to render it soft and of convenient consistence to spread readily over the stone, but not so thin as to run off. During this process of grinding, the operator should press on the muller with considerable force, moving the muller in circular or other directions at discretion, as will most effectually reduce the paint to the requisite fineness. When each quantity is sufficiently fine for use, it is removed from the paint stone to the cup or vessel prepared to receive it, by means of a broad but thin and elastic blade; termed a paint-knife. This paint stone, however, with the stone muller, and paint-knife may be dispensed with; and a piece of planed plank, with a block of wood for a muller and a thin blade of wood for a paint-knife, may be conveniently substituted: indeed many of the colors before mentioned, may be simply mixed to the proper consistence with oil, and will answer for common outside painting without grinding. Of this class are Venitian red, yellow ochre, (commonly known as French yellow,) French green, chrome green, vermillion and lampblack. Paint mills are in general use with those who make a business of painting. When white lead, which is a principal article in house painting,—is to be ground in a mill, it is first pulverised by passing a hand roller over it to crush the lumps: it is then mixed with oil in considerable quantity previous to grinding. In this process the operator usually judges of the consistence of the mixture without regard to weight or measure of the ingredients, merely mixing it as stiff as can be conveniently stirred with a stick or spatula; but the usual proportion is three and a half gallons of oil to a hundred pounds of white lead. All other paints are also mixed prior to grinding. For outside painting on bare wood in warm weather, no other ingredient is required than pure linseed oil, with which to mix and dilute the paint. The only rule to be observed in tempering the paint, is to dilute with oil till it will spread freely with the brush.—If a new paint brush is to be used it should be of a short smooth kind called *ground brushes*; but no new brush is suitable for common painting, till it has been used two or three days on roofs, brick walls, or other coarse work. It is better for a beginner to procure a half worn brush if possible: otherwise he may bind the brush with twine for a third part of its length, thus confining the bristles in a compact form till the brush is worn smooth and soft. The brush should in general be held firmly between the thumb and first finger of the right hand, but passing between the first and second fingers: but in various kinds and positions of work, it is held in a different manner, either in the right or left hand. A painter should be accustomed to work with either hand with equal dexterity. When the brush is dipped in the paint, it should be drawn lightly across the edge of the *paint-pot or bucket*, to remove the redundant paint and prevent its dripping from the brush when filled; or may be gently spatted against the inside of the pot, which will answer the same purpose. In painting on wood, the paint should be brushed crosswise and otherwise till it is evenly spread over the work, and then smoothed by being brushed carefully with the grain of the wood. This rule must be particularly observed in painting pannel doors; the pannels are first smoothed: then the beads round the pannels; next the shorter parts of the frame, and lastly the vertical sides and ridges.

(*To be continued.*)

To Write in various Colors with the same Pen and Ink.

Take a sheet of paper and wet some parts of it with a solution of subcarbonate of potas, which must be diluted with water so as not to appear on the paper when dry. Wet some other parts with diluted muriatic acid, or with juice of lemons. Some other parts may be wet with a diluted solution of alum; and others with an infusion of nutgalls (water in which bruised or pulverized nutgalls have been steeped.) None of these preparations must be so strong as to color the paper.—When these are dry, take some finely powdered sulphate of iron, and rub it lightly on some parts of the paper, that have been wet with the subcarbonate of potas and infusion of galls. Then with the juice of violets, or of the leaves of red cabbage, write on the paper as usual with a pen. The ink is of itself a faint purple; where the paper was wet with acid, the writing will be a bright red; on the subcarbonate of potas, it will take a beautiful green; on the alum it will be brown; on the subcarbonate of potas that was rubbed with powdered sulphate of iron, it will be deep yellow; and on the infusion of galls that was rubbed with powder, it will be black. The juice of violets will take a brilliant yellow on the alkali if it be very strong. The juice of violets or red cabbage may be kept a long time by means of the addition of a few drops of alcohol; or the leaves may be dried by the fire, and thus may be kept ready for use; and it is only requisite to steep them in hot water, in order to prepare the ink at any time.

THE BELL FOUNTAIN.



This is the most simple, and by some esteemed the most elegant pattern for a small fountain, that has been introduced. It, of course, requires no description. The quantity of water requisite for supplying a fancy fountain of this pattern may be from five to ten gallons per minute. It is not particularly requisite that it should be located in the centre of a pool, as represented in the cut, though it may be in very good taste. We are not informed of the price of this pattern, but they may be obtained at the store of Mr. D. L. Farnam, 29 Fulton street.

To Wash Brass or Copper with Silver.

To half an ounce of nitric acid in a phial, add one ounce of water, and one-fourth of an ounce of good silver. It will soon be dissolved, and if the acid and metal are both pure, the solution (which is called nitrate of silver) will be transparent and colorless. Add to this a solution of nearly two drachms of muriate of soda, in any quantity of water; this will precipitate the silver in a white opaque mass. Pour off the water with the acid, and add to the silver an equal quantity of super-tartrate of potas, thus forming a soft paste; dip a piece of soft leather in this paste, and rub it on the metal to be silvered; continue rubbing it till it is nearly dry; then wash it with water, and polish by rubbing it hard with a piece of dry leather. Another method is, to add sub-carbonate of potas to the nitrate of silver, as long as ebullition ensues; then the acid is poured off, and the precipitate (which is white at first, but becomes green when dry) is mixed with double its quantity of muriate of soda, and super-tartrate of potas. With this composition being moistened, the metal is rubbed over, &c

Portable Cottages.

A portable dwelling house, on the principle to which we alluded in a late number, was a few days since, constructed with four rooms and three closets, at Cincinnati, and dissected. It was then carried by a small boat twenty miles, and the next day erected complete and was occupied by the family of the owner.—The workmen took tea in the house, and returned.

THE NEW YORK
SCIENTIFIC AMERICAN:
Published Weekly at 128 *Fulton Street*, (*Sun Building*,) *New York, and No.* 13 *Court Street, Boston; the principal office being at New York.*

BY MUNN & COMPANY.

The SCIENTIFIC AMERICAN is the Advocate of Industry and Journal of Mechanica and other Improvements: as such its contents are probably more varied and interesting, than those of any other weekly newspaper in the United States, and certainly more useful. It contains as much interesting Intelligence as six ordinary daily papers, while for *real benefit*, it is unequalled by any thing yet published Each number regularly contains from THREE to SIX ORIGINAL ENGRAVINGS, illustrated by NEW INVENTIONS, American and Foreign,—SCIENTIFIC PRINCIPLES and CURIOSITIES,—Notices of the progress of Mechanical and other Scientific Improvements Scientific Essays on the principles of the Sciences of MECHANICS, CHEMISTRY and ARCHITECTURE,—Catalogues of American Patents,—INSTRUCTION in various ARTS and TRADES, *with engravings*,—Curious Philosophical Experiments,—the latest RAIL ROAD INTELLIGENCE in EUROPE and AMERICA,—Valuable information on the Art of GARDENING, &c. &c.

This paper is especially entitled to the patronage of MECHANICS and MANUFACTURERS, being devoted to the interests of those classes. It is particularly useful to FARMERS, as it will not only apprise them of IMPROVEMENTS in AGRICULTURAL IMPLEMENTS, but INSTRUCT them in various MECHANICAL TRADES, and guard against impositions. As a FAMILY NEWSPAPER, it will convey more USEFUL Intelligence to children and young people, than five times its cost in school instruction.

Being published in QUARTO FORM, it is conveniently adapted to PRESERVATION and BINDING.

TERMS.—The Scientific American is sent to subscribers in the country at the rate of $2 a year, ONE DOLLAR IN ADVANCE, the remainder in 6 months. Persons desiring to subscribe, have only to enclose the amount in a letter, directed to

MUNN & COMPANY,
Publishers of the Scientific American, New York.

☞ Specimen copies sent when desired. All Letters must be POST PAID.

© 1847 SCIENTIFIC AMERICIAN, INC